REPORT RESUMES

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SCHOOL PLANT RESEARCH AND PLANNING INFORMATION ABSTRACT SERVICE. (NCSC ABSTRACT SERVICE).

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HOUSTON UNIV., TEX.

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A 1-YEAR PILOT PROJECT OF DOCUMENT ABSTRACTION WAS UNDERTAKEN BY A VOLUNTARY PANEL OF 32 SCHOOL PLANT SPECIALISTS FROM THE MEMBERSHIP OF THE NATIONAL COUNCIL ON SCHOOLHOUSE CONSTRUCTION. THE GOAL OF THIS PILOT STUDY, CARRIED OUT AT THE UNIVERSITY OF HOUSTON, WAS TO IDENTIFY, ACQUIRE, ABSTRACT, AND DELIVER TO THE EDUCATIONAL RESEARCH INFORMATION CENTER 1,000 DOCUMENTS OF EDUCATIONAL FACILITY RESEARCH AND DEVELOPMENT INFORMATION RELEASED SINCE 1960 THAT WERE UNPUBLISHED OR OF LOW CIRCULATION. THE SYSTEM OF PROCEDURES FOR THE PROJECT WAS DESCRIBED. THESE PROCEDURES INCLUDED PREPARATION OF A SOURCE LIST, INSTRUCTIONS TO ABSTRACTORS, REQUESTS FOR MATERIALS, EVALUATION OF MATERIALS, AND ORGANIZATION OF DOCUMENTS AND ABSTRACTS FOR STORAGE AND RETRIEVAL. THE TYPES OF DOCUMENTS ABSTRACTED WERE (1) RULES, REGULATIONS, AND PLANNING, (2) WORKSHOPS, SYMPOSIUMS, AND CONFERENCES, (3) ACTION RESEARCH, AND (4) CONTROLLED RESEARCH. THE DOCUMENTS WERE OBTAINED FROM STATE AGENCIES, CONFERENCE REPORTS, PROFESSIONAL JOURNALS AND MAGAZINES, PRIVATE INDUSTRY, UNIVERSITY RESEARCH, PROFESSIONAL ASSOCIATIONS, AND DOCTORAL THESES. (AL)

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FINAL REPORT

Contract No. OEC-4-6-068348-0677

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September 1966

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U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

SCHOOL PLANT RESEARCH AND PLANNING INFORMATION ABSTRACT SERVICE.

(NCSC ABSTRACT SERVICE).

Contract No. OEC-4-6-068348-0677

Wallace H. Strevell, Ed.D.

September 1966

The research reported herein was performed pursuant to a contract with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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ACKNOWLEDGMENTS

The School Plant Research and Planning Information Abstract Service was operated as a pilot study of the Educational Research Information Center, Bureau of Research, U. S. Office of Education. Since the proposal was planned and initiated by the Research Committee of the National Council on Schoolhouse Construction it was titled the NCSC ABSTRACT SERVICE. The Advisory Board appointed for the project were Wallace H. Strevell, Chairman, William W. Chase, Arthur E. Wohlers, William O. Wilson, and Basil Castaldi.

A voluntary panel of school plant specialists from membership of the National Council on Schoolhouse Construction served as abstractors: C. Amundrud, C. S. Blackburn, William S. Briscoe, Chester Bumbarger, Donald O. Bush, William W. Caudill, Wilfred F. Clapp, M. Gene Coffey, M. J. Conrad, Richard L. Featherstone, A. B. Grimes, Thomas S. Gwynn, Jr., Clifford Hawley, Richard L. Holstead, J. H. Hulvey, David W. Hutcheson, Frank E. Irvin, Thomas Earl Jordan, LaMoine Langston, Donald J. Leu, James D. MacConnell, C. W. McGuffey, Selwyn A. Miller, Emmett J. Moll, Gerald R. Rasmussen, Archibald B. Shaw, Robert J. Simpson, Merle A. Stoneman, Arnold C. Tjomsland, Richard F. Tonigan, W. Donald Walling, and Cleve O. Westby.

The managing editor of the project, Mrs. Pauline Oliver of the Bureau of Education Research and Services, University of Houston, developed the systems, maintained the relationships, and conducted the work of the project to completion. Graduate students who assisted in the work were Harrell Carpenter, Myron Blankfield, and Howard Jefferson. The abstract service, guided by established standards and goals, gained experience through participation in the storage and retrieval aspects of the ERIC clearinghouse function.

Wallace H. Strevell, Ed.D.
Principal Investigator

September 1966

INTRODUCTION

The School Plant Research and Planning Information Abstract Service was established under contract with Educational Research Information Center, Bureau of Research, Office of Education, U. S. Department of Health, Education, and Welfare. It was funded for $9,000 under PL 81-152 Title III and PL 83-531. The project was jointly sponsored by the National Council on Schoolhouse Construction and the University of Houston.

Headquarters of the project were in the Bureau of Education Research and Services, University of Houston. The University of Houston was fiscal agent. The Principal Investigator was Chairman of the Department of Administration and Supervision in the University of Houston and also Chairman of the Research Committee of the National Council on Schoolhouse Construction. An experienced research editor was available in the Bureau of Education Research and Services who served as managing editor of the project. The Research Committee of the National Council on Schoolhouse Construction consisting of five school plant specialists were the Advisory Board for the project.

The project was established in September 1965 and one year later had completed its specific goals. A major factor in the pilot study was to engage a panel of school plant specialists as field workers and abstractors. The operating title adopted for the project was NCSC ABSTRACT SERVICE. The field relationships and publication of an abstract journal were conducted under this title.

The Problem. At the time when the proposal for the project was developed and the School Plant Research and Planning Information Abstract Service was authorized the Educational Research Information Center program of the U. S. Office of Education was only in its formative stages. The present program of decentralized national clearinghouses had not been determined or established. The Research Committee of the National Council on Schoolhouse Construction proposed that throughout the country well-informed, capable professional specialists were in contact with the sources of research and research-related documents concerning the development of educational facilities and that they were qualified to assist in selecting and abstracting these documents for a central system of information storage, retrieval, and public service. Also these qualified field workers would be leaders in making materials of significance available to practitioners.

Information was desired by the Educational Research Information Center concerning operational questions. How could research and research-related documents that were unpublished or had relatively low circulation be recognized, selected, and procured throughout the broad scope of the country? How should these documents be screened for their intrinsic significance and national relevance? How should an operating office be organized in a subject area such as educational facilities information to instruct the field workers, maintain effective controls, and provide leadership that would engage the professional skills of qualified workers nationally? There were many other operational questions at the time concerning the preparation of abstracts, processing of materials, methods of indexing, systems for storage and retrieval, and ultimately public service, most of which have been resolved in the course of the pilot study. Progress information has been supplied to the Educational Research Information Center (USOE) as the pilot study was organized and developed. The report below will record the process and observations concerning these experimental questions which constituted in general the problem.

Objectives. Recognized goals of the pilot study were: (1) To organize educational facility research and development information in a complete and standard way for acquisition, processing, storage, retrieval, interchange, and dissemination; (2) To provide professional, experienced personnel for quality control in the selection of materials, and the processing of information for maximum application; (3) To coordinate with all procedures of the Educational Research Information Center (ERIC) of the U. S. Office of Education; (4) To procure 1,000 suitable documents having national relevance but either unpublished or of relatively low circulation covering school plant research and planning information; and (5) To have these documents abstracted on document resume forms (not to exceed 250 words each) with retrieval terms attached.

A severe limitation was an instruction to accept only documents that either were unpublished or had relatively low circulation. This restriction excluded all material in U. S. Government publications, and all bound books or well-known articles in journals or other popular works. The restriction did admit, however, state department bulletins, publications of universities and research centers, technical reports and papers, research dissertations, and reports of private investigation by school plant specialists. Another limitation was acceptance only of recent material released since 1960.

The scope and purpose of the project is also explained in Exhibit I. This general descriptive statement was prepared and used as an insert in the NCSC ABSTRACT SERVICE correspondence.

METHOD

A framework for organization of the NCSC ABSTRACT SERVICE was planned by the Research Committee of the National Council on Schoolhouse Construction and stated in the proposal. The specific tasks to be performed were to locate, codify, screen, evaluate, abstract, store, and retrieve for public use certain school plant research and planning information. This work was to be done under direction and regulation of the Educational Research Information Center of the U. S. Office of Education as to procedures, types of information, types of abstracts, taxonomy of codification, format of materials processed, authorship of abstracts, contacts with professional groups in locating information, and other questions of scope and method. Management systems, specific instructions, and regulations had to be developed by the project so that all concerned would observe standard procedures.

The Advisory Board appointed by the board of directors of the National Council on Schoolhouse Construction reviewed all operating procedures and policies of the project. They held three regular sessions during the project period and reported their progress to the National Council on Schoolhouse Construction at its annual meetings.

The Advisory Board proposed the names of a panel of qualified members of the National Council on Schoolhouse Construction to serve as voluntary field workers and abstractors. The Principal Investigator wrote letters of invitation to these individuals, explaining the general scope, purpose, and responsibilities of the project. Cooperation was immediately evident and a panel of 32 abstractors was established (refer to Exhibit II).

The University of Houston furnished desk space for two employees and employed a Managing Editor and a typist for the project. The Managing Editor prepared instructions for the field abstractors and developed and managed the necessary systems for the purposes of the project. These systems are discussed in detail under operating procedures below.

A specific goal for the office management had been accepted in these terms:

> The contract is for one year and there shall be delivered to the U. S. Office of Education 1,000 abstracts. These abstracts shall cover 1,000 documents and to the maximum

extent possible the 1,000 documents (or photo-copies) will be delivered with the abstracts.

The scope of such documents is limited as follows:

(1) The research and development information reported may date back to 1960 as a general rule. Research of significant value prior to 1960 can be included.

(2) The character of documents may be unpublished material or published material of relatively low circulation (significant items that may not readily be known to the potential user).

(3) The material must have national relevance and pertinence. The research techniques used must be of high quality. Materials may include innovation in design or procedures and unique techniques developed in surveys and planning in the school facilities field.

The procedures for achieving this goal were experimental. Abstractors were requested to search for suitable documents in assigned regions of the country. The Managing Editor prepared a checklist of sources of documents. Many documents were obtained by direct inquiry to sources discovered by the office staff. The Advisory Board and the office staff established standards for selecting the documents for abstracting and both the abstractors and editor rigorously screened the materials according to these standards.

The abstractors prepared resumes of the selected documents, which the editor then reviewed and processed. Control and indexing procedures were established by the editor. During the project the ERIC program had reached the stage of free indexing so the abstractors listed appropriate retrieval terms on each resume. The established quantity of resumes and accompanying documents were furnished to the Educational Research Information Center in Washington, D. C., according to ERIC stipulations.

The Managing Editor processed a quantity of the abstracts for publication by the National Council on Schoolhouse Construction in a periodic abstract journal. Numerous inquiries for information were received by the NCSC ABSTRACT SERVICE and insofar as possible these inquiries were answered by correspondence during the project period.

RESULTS

The NCSC ABSTRACT SERVICE began operation September 15, 1965. By September 1966 it had identified and acquired 1,000 documents of good quality, established as the goal for the pilot study. In fact, there were 1,357 school plant research and development documents of suitable character obtained, making a surplus of 357 documents on hand for further processing. A number of recent documents were added to this inventory subsequent to September 1966.

The 1,000 educational facilities research and research-related documents abstracted thus far are distributed by source, by type, and by content as follows:

SOURCES OF DOCUMENTS	PERCENT
State Agencies	28
Conference Reports	20
Professional Journals and Magazines	17
Private Industry	15
University Research	7
Professional Associations	8
Doctoral Theses	5

TYPES OF DOCUMENTS	PERCENT
Rules, Regulations, Planning	36
Workshops, Symposiums, Conferences	36
Action Research	21
Controlled Research	7

CONTENT OF DOCUMENTS	PERCENT
School Facilities and Equipment	23
Internal Environment	13
Design	12
Specifications	8
Planning	8
Maintenance	6
Sites	5
Plant Management and Operation	5
Finance	4
Building Codes	3
Surveys and Population Studies	3
Safety	3
Construction	3
Improvement, Remodeling, Renovation	2
Evaluation	2
Law	2
Special Education (Handicapped)	1

OPERATING PROCEDURES

Further detail concerning the experimental procedures and systems developed by the NCSC ABSTRACT SERVICE is discussed below under the headings: (1) abstractors, (2) instructions, (3) locating documents, (4) sources of documents, (5) obtaining acceptable documents, (6) updating the collection of documents, (7) editorial management, (8) indexing, (9) control records. First, however, the nature of the conclusions seems to justify a brief discussion of several background factors: (a) the interest of the National Council on Schoolhouse Construction, (b) the abstract journal, (c) the project budget, and (d) the public service.

Background Factors

Since the construction of schools represents a major investment (more than $4 billion per year) and the planning of schools epitomizes both the hopes and aspirations of local communities for education, creating in practical terms the educational facilities for modern instruction, the field of school plant research and related information was thought to warrant national recognition as a major source of leadership potential.

This fact had been recognized by the National Council on Schoolhouse Construction for many years and for more than a decade the National Council had expressed to U. S. Office of Education the desirability of having a clearinghouse for school plant research and planning information. Meanwhile, similar services as developed in other scientific fields furnished prototypes showing how this could be done. Some of the work of an educational facilities exchange has been carried on through the years by the school plant section in the U. S. Office of Education. Well-qualified individuals in this office have answered inquiries, provided bibliographies and references to centers of research and planning activity, and produced creditable bulletins which established standards and leadership in the field.

A systematic approach to the problem of information retrieval is now achieved by the concept and establishment of an Educational Research Information Center (ERIC-USOE) that will make general provision for educational information clearinghouse functions in all areas of education. The Research Committee of the National Council on Schoolhouse Construction responded to this opportunity by submitting various forms of a proposal for a pilot study in accordance with the developing concepts of ERIC. The committee was instructed to do this by the board of directors of the National Council on Schoolhouse

Construction at their annual meeting in Houston in October 1965. A service contract (OEC-4-6-068348-0677) for the NCSC ABSTRACT SERVICE project was subsequently negotiated with the University of Houston through its Department of Administration and Supervision and Bureau of Education Research and Services. The Research Committee had been proposed as Advisory Board to the project, and school plant specialist membership of NCSC were proposed as voluntary field workers and abstractors. The reviewers would be geographically situated where they could obtain new materials from designated institutions, agencies, journals, etc. The reviewers would also comprise a representation of the various specializations within the educational facilities area. Thus the U. S. Office of Education would avail itself of the professional experience and skills of the National Council on Schoolhouse Construction.

The major objectives of the service contract are:

(1) To review, evaluate, organize, and synthesize pertinent literature and materials on school plant research and planning information.

(2) To make available the professional experience and skills of school plant specialists throughout the country in locating, codifying, screening, evaluating, and abstracting school plant research and planning information.

(3) To abstract significant literature and materials as they develop in the school plant field in order to maintain a continuing up-to-date deposit in the U. S. Office of Education school plant information clearinghouse.

(4) To organize the abstracts in a complete and standard way for dissemination to membership of the National Council on Schoolhouse Construction and other professional groups or practitioners in local schools, state departments, and institutions of higher learning.

(5) To cooperate in periodic dissemination of abstracted reports on current school plant research and related information by the U. S. Office of Education school plant information clearinghouse.

The proposal was jointly sponsored by the National Council on Schoolhouse Construction and the Department of Administration and Supervision, University of Houston, Houston, Texas. The contract provided for a coordination unit to be located in the institution with which the Research Committee Chairman of the National Council on Schoolhouse Construction was affiliated.

Due to delays, the contract with the U. S. Office of Education was finally negotiated on May 1, 1966 extending to February 28, 1967. Dr. Eugene P. Kennedy, Project Officer (ERIC), was named Washington correspondent. His office was sent an advance lot of 100 resumes for use of the department. The total of 1,000 documents and resumes was shipped to ERIC on January 6, 1967, completing the quantity goal stated in the contract.

Abstract journal. The Research Committee of the National Council on Schoolhouse Construction decided to publish a selection of the resumes on a trial basis. Two issues of an abstract journal were printed in 1,000 copies per issue during the project term. (See Exhibits IX-A and IX-B.) These were distributed to National Council on Schoolhouse Construction membership by its Executive Secretary.

The process was to take typical resumes and with slight editing reproduce them in a 20- to 30-page booklet by multilith process. The exact title of the document, its source and publication date, and the accession number were given. Initials of the abstractor were shown for each resume. A list of the abstractors appeared on the final page of the booklet. Since the major work of research and editing had already been done, the process of preparing a journal from typed resumes proved relatively simple. Obviously only about 50 resumes could be included per issue in a booklet of this size without photographic reduction or other method.

The abstract journal proved to be the most tangible and useful product of the project from the standpoint of the school plant specialists. Therefore the National Council on Schoolhouse Construction decided to continue the organization of abstractors beyond the project period and engaged the Managing Editor (who now is employed in a different capacity at the University) to give part-time assistance in publishing additional issues of the abstract journal in 1966-67. The field abstractors keep up-to-date the collection of school plant research documents and current issues of the abstract journal are drawn from resumes produced in the course of the project.

Budget costs. As stated in the project proposal the operating budget for one year was as follows:

Year Beginning September 15, 1965

ITEM	FUNDED BY		
	Federal Budget	Non-Federal Budget	
		U. of H.	N.C.S.C.
Obtaining documents	$ 500		
Screening documents	2,000	$ 300	$ 3,000
Abstracting documents	3,000		6,000
Indexing documents	500		
Typing resumes	1,100		
Office space		1,200	
Equipment	400		
Overhead (U. of H.)	1,500		
	$ 9,000	$ 1,500	$ 9,000

NOTES:

The above budget provides salary of managing editor (10 mo. @ $440 = $4,400), salary of part-time typist (10 mo. @ $120 = $1,200), travel ($500), supplies, duplicating and consultant per diem ($500), purchase of office typewriter and furnishings ($400). The estimate for obtaining documents ($500) assumes that many documents can be obtained without charge; this estimate may need to be adjusted in view of experience with the work. Total estimated budget including contributed professional services is $19,500. The U. S. Office of Education payment will be $7,500 plus 20% overhead - $9,000 for 12 months.

At the conclusion of the project net cash expenditures on September 14, 1966, were found to have been as follows:

Salaries	$ 6,336.00
Documents ordered	146.65
Printing and duplicating	191.95
Travel	388.22
Office supplies, postage, telephone, expenses of abstractors	447.55
Equipment	339.91
FICA and insurance	291.38
	$ 8,141.66

As may be observed, the operating budget had failed to provide for $641.66 of net costs due to costs of insurance, social security payments, printing, etc. Actually the indirect costs were more than double the project budget, considering the nonreimbursed time and labor of the Principal Investigator, the unrecorded time of graduate students who were engaged on fellowships, and the publication of an abstract journal from funds outside the project. Furthermore, the time and labor of NCSC school plant specialist abstractors was not reimbursed.

Public service. In addition, a true clearinghouse would need to estimate the task of answering an increasing number of substantive inquiries, the costs of computer retrieval systems and reprint of microstorage, publishing of papers and journals, preparing bibliographies and doing library research, and handling of an increasing volume of documents, records, and materials.

Systems Detail

The following description of the enterprise records practical detail of relationships, controls, and management systems:

(1) Abstractors. The project budget did not provide for payment to abstractors. The membership of the National Council on Schoolhouse Construction had expressed a strong professional interest in the purposes of the clearinghouse and it was intended to invite voluntary participation. The NCSC Board had nominated a panel of school plant specialists of national reputation who were members of the Council and whom they considered well qualified to do the work. Letters were sent to each of these individuals explaining the plan and purpose of the NCSC ABSTRACT SERVICE and inviting them to serve as voluntary abstractors. With only two or three exceptions, for justifiable reasons, the NCSC school plant specialist members invited to serve as abstractors accepted. Exhibit II lists the roster of abstractors as of January 1966. Some who accepted the assignment offered their services for only one year or otherwise qualified their reply, but actually very few changes have occurred in the panel of abstractors. Most of the members have been consistently productive.

The Managing Editor conferred with the original group of abstractors at a breakfast meeting at the annual NCSC meeting held in Lincoln, Nebraska, in October 1965. The abstractors held their second conference at a breakfast meeting at the annual NCSC meeting in Palo Alto, California, in October 1966. Communication with the group of abstractors located throughout the nation and Canada was maintained by the Managing Editor on a monthly basis or more frequently. Sample resumes were prepared by the Managing Editor, documents were exchanged, recognition was given those persons who prepared the resumes. The Principal Investigator from time to time sent personal letters to the abstractors.

An early effort was made to have the abstractors assigned to cover particular geographic areas or sources of documents. Subsequent communication informed them of progress made, of goals to be reached of dates to be met, and of policy developments. Such communications concerned both the project and the services of the NCSC Research Committee.

Resumes were written by the abstractors and carefully edited by the Managing Editor in agreement with the Educational Research Information Center in Washington, D. C. The resumes were typed on standard forms and in accordance with ERIC instructions for the 1,000 selected documents (refer to Exhibit III). Of all this work, about 50 percent was completed by the NCSC abstractors in the field and about 50 percent in the office of the Managing Editor. Analysis of the documents selected and the resumes written confirms the original basis on which the pilot study was established: that the professional skill and experience of school plant specialists are essential ingredients in a clearinghouse operation.

(2) Instructions. The instructions to field workers were made compatible with the ERIC system and included the detailed instructions printed on the ERIC Document Resume Form (Exhibit III). Material recorded on a resume covered the source of document, title, author, date, and pagination together with a 250 word (maximum) abstract, name of abstractor, and several free retrieval terms. Other information added by the Managing Editor provided necessary identification data such as accession number.

In addition to guidelines in the standard ERIC Document Resume Form, the Managing Editor prepared for the abstractors a statement of instructions (refer to Exhibit IV). This statement of instructions proved to be adequate for the purpose and was not amended during the year. It included a statement of the limitations, that acceptable documents published since 1960 and unpublished material or published material of relatively low circulation with high quality having national relevance and pertinence should be sought. An outline, taken from the proposal, was furnished in the instructions to show the full coverage of the school plant field wherein research documents may be abstracted. Other instructions dealt with form of abstract, obtaining documents, and communication with the Managing Editor. The recorded experience of other national abstract services was applied in preparing the instructions.

On the whole there were few problems concerning the actual preparation of abstracts. While each school plant specialist had his individual style of writing, the content and technical competence of the resumes proved uniform and acceptable.

(3) Locating documents. One of the puzzling problems at first was the location of documents, especially in view of the limitation to "significant items that may not readily be known to the potential user."

For instance, it was difficult to explain to all concerned what was desired. Finally this problem was solved by relentless correspondence and search, often by using telephone communication as necessary. It was hoped that some sort of geographic coverage of the country could be secured by having the NCSC abstractors strategically located in all areas, but this was never completely achieved. The Managing Editor's office contacted most of the 300 sources initially. Nevertheless, about 30 percent of the documents were originally located by the field abstractors which may show that in time a widespread location of field workers can be productive in locating appropriate documents.

(4) Sources of documents. The Managing Editor supplied the abstractors with a list of approximately 315 known sources of school plant research documents (Exhibit V). The abstractors were given a supply of form letters with which to obtain documents. The abstractors were reimbursed by the project the sum of one dollar per document located and resume submitted, to cover the cost of postage and handling.

The Managing Editor sent a form letter to more than 300 sources acquainting them with the project and types of material desired. Probably such a general request for material is necessary as part of the process, but it was not the productive means. Direct inquiry proved more successful.

The sources of documents were by no means limited to those agencies listed. Other sources included papers presented at professional meetings, publications of various municipal agencies and school districts, architectural firms, manufacturing concerns, engineering firms, research institutes, etc. In fact, school plant research and planning reports occur in many other places than professional societies, universities, or state education departments.

(5) Obtaining acceptable documents. The Managing Editor composed form letters: a letter of request for particular documents (Exhibit VI), and a request for copyright release (Exhibit VII). The request for copyright release was generally granted. The request for (two) complimentary copies generally brought a prompt and favorable reply. Thus the office staff was usually successful in obtaining copies of documents without charge when a specific request was made. The Managing Editor wrote over 400 letters and received documents from 32 states. The total expenditure for purchase of documents during the year was $146.65.

In some instances the documents were out of print or unavailable, and to photocopy them would have cost from five to fifty dollars which was not possible under the project budget. There were about fifty documents found unavailable that would have required photocopying but these were not needed to meet the year's goal of 1,000 low circulation documents. It would have been difficult to obtain two or three duplicate copies of a number of the documents, so the abstract service had to be satisfied with single copies in those instances. It was to be assumed that microfilmed documents such as dissertations would be otherwise available to the ERIC system.

(6) Updating the collection of documents. Experience gained through the search for acceptable documents suggests several ways to keep the collection current. The Managing Editor can scan the indexes, journals, and emerging bibliographies and reports to locate new material. The field abstractors can cover assigned sources such as state education departments, research agencies, and professional societies. Letters of inquiry can be sent to prospective sources such as announced conferences, centers having school plant as a major concern, executive secretaries of professional groups. Publication of abstracts further encourages the cooperation of such sources. Graduate students can comb the field on assigned topics and also inquire of manufacturing concerns and architects or engineers. A very productive means this year has been telephone communication with centers that produce or collect school plant research and information.

(7) Editorial management. The Managing Editor identified, located, and obtained about 70 percent of the acceptable documents. The Managing Editor screened these documents to keep only those of quality and relevance. The documents were then mailed to field abstractors with the request that they also evaluate the quality of the particular document. Then the field abstractor prepared a resume and returned the document and resume to the Managing Editor.

The Managing Editor reviewed each resume and corrected it for uniformity of approach and format. The entire resume form was then retyped on Form OE600 (9-65) for microstorage by ERIC. The original copies of the resumes were filed as work copies. Other editorial work included answering operational inquiries and daily correspondence necessary to the operation of the abstract service. Since the project was in the nature of a pilot study the procedures had to be developed and tested in successive stages.

The success of the project was due in large part to having a full-time competent, experienced, and responsible staff. The project editor had a Master's Degree in Education and more than ten years of experience with this type of editing. In September 1965 she visited the U. S. Office of Education for three days of training in the ERIC system. She founded the entire office system of the project and assumed responsibility for handling correspondence, processing materials, and achieving the accepted goals. In the office work she was assisted by a part-time secretary who was accustomed to production standards and who kept the control records. As the project advanced into the spring and summer months, several graduate doctoral students were engaged to work from time to time.

The Principal Investigator of the project dealt with policy matters and decisions, maintained relationships with the National Council on Schoolhouse Construction and the field abstractors, reviewed all the work, and supervised the necessary correspondence. In the later months of the project there was a considerable increase in the number of substantive inquiries received. The replies to these inquiries were handled by the Principal Investigator with the assistance of graduate fellows who did library research on various questions which were outside the capability of simple retrieval from school plant research documents collected to date.

(8) Indexing. Abstractors were invited to attach up to eight or ten free retrieval terms per resume. This work was done prior to publication by ERIC of a Thesaurus of retrieval terms. (Refer to *ERIC Guidelines for the Development of a Thesaurus of Education Terms*, February 1966, and Thesaurus of ERIC Descriptors: Phase I, June 1966.)

INCIDENCE OF RETRIEVAL TERMS

Acoustics	18
Adult education facilities	1
Air-conditioning	34
Air walls	1
Architect, contract	8
Architect selection	4
Artificial turf	2
Audio-visual systems	8
Auditorium facilities	6
Auditorium seating	1
Auditorium stage	2
Bibliography, innovations	1
Bibliography, mathematics classroom	1
Bibliography, planning facilities	1
Bibliography, safety	1
Bidder's contract form	1
Bond elections	7
Building additions	19
Building alterations	18
Building committees	4
Building costs	29
Building flexibility	10
Building regulations	25
Building safety	8
Business education facilities	6
Bus facilities	4
Bus maintenance	11
Campus planning	12
Carpeting	24
Carpet costs	9
Carpeting, learning	3
Carpet maintenance	6
Carrels	5
Chalkboard-tackboard walls	3
Citizen's advisory committees	1
Classroom furniture	3
Clocks and program systems	3
College buildings	17
College plant planning	7
College residential facilities	5
Color, learning	1
Communications center	3
Community college	5
Community power structure	1

Component systems	4
Contracts	11
Custodial facilities	2
Door hardware	27
Doors	6
Draperies	2
Driver education	3
Dual occupancy	1
Economies, building	15
Economies, planning	9
Educational specifications	28
Educational television	18
Electronic learning center	1
Emergency lighting	2
Evaluating facilities	14
Expenditure, projection	1
Fine arts facilities	5
Fire alarms	3
Fire escapes and exits	5
Fire safety	19
Floors	21
Floor maintenance	11
Food service	12
Food service, cafeterias	3
Food service, centralized Kitchen	1
Food service, frozen foods	1
Food service, shopping center service	1
Food service, vending machines	1
Glazing and fenestration	1
Guidance facilities	2
Gymnasium construction	5
Gymnasium floor maintenance	2
Health service facilities	3
Heating	16
Heating, coal	2
Heating, gas	4
Heating, electricity	4
Heating, oil	3
Heating costs	15
Homemaking facilities	8
Industrial education facilities	3
Instructional materials center	6
Instructional TV	6
Insulation	2
Insurance	17
Junior colleges	7
Kindergarten planning	2
Language laboratories	6
Lecture-lab combinations	2
Lecture hall criteria	2
Library costs	3
Library design	14
Lighting	38
Lighting design	9
Lighting evaluation	7
Long-range planning	11
Loudspeakers	2
Lunchroom equipment and facilities	4
Machine accounting	2
Maintenance	61
Maintenance materials	5
Metal curtain walls	5
Metal stairs	5
Middle school	2
Middle school organization	2
Modifiable plans	2
Modular units	2
Movable equipment	2
Movable partitions	9
Multipurpose unit	4
Music facilities	3
Office facilities	3
Open design	3
Outside corridors	1
Parking lots	4
Physical education facilities	11
Plant management	2
Playground mats	1
Playground planning	6
Plumbing	3
Population study	6
Portable buildings	6
Prestressed concrete	8
Remodeling	6
Renovation	18
Roofing	5
Sanitary facilities	5
Scholastic density	2

School building size	4
School construction	41
School design	110
School fallout shelters	8
School finance	25
School rehabilitation	7
School site	42
School surveys	16
School plant planning	84
Science facilities	6
Science laboratories	4
Seminar rooms	2
Service core	2
Shells	2
Shelving	1
Site beautification	2
Site rating form	2
Site selection	8
Sound and sight control	1
Space divider	2
Space, divisible	4
Space requirements	3
Space utilization	9
Special education facilities	1
Standard school plans	17
Speech and hearing facilities	3
Student activities facilities	2
Sunshades	1
Swimming pools, indoor	1
Team teaching	4
Television facilities	6
Television installation costs	3
Television specifications	4
Temperature control	36
Thermal environment	40
Thresholds	2
Toilet facilities	1
Topographic survey	1
Total energy	2
Utilities core	4
Utilities survey	1
Vandalism	4
Venetial blinds	4
Visual environment	2
Vocational schools	5
Wall finishes	6
Walls, glass	4
Walls, operable	4
Weather stripping	1
Windowless school	3
Windows	4

(9) Control records. Every potential document located was written up on an index card form (refer to Exhibit VIII) which master control record followed the processing of the particular document to its completion. For example, this master control record showed the author, title, publisher, date, and pages of each document. It also included the dates the document was ordered, obtained, sent to the abstractor, received from the abstractor, the number of copies on hand, and so on. These cards were alphabetized by category.

Another record of equal importance was the accession record. As soon as a document was identified, it was recorded in an accession book. This provided an identification number for the document that was kept in subsequent storage, transfer, retrieval, and other processes. The accession number was recorded on the document, the resume, and on the master control index card. These records eliminated any possibility of duplication. They also provided identification and cross-reference in handling documents and resumes.

CONCLUSIONS

The experimental nature of the project resulted in the development of systems from which the following observations are evident:

(1) Research and development materials in the area of educational facilities are produced in considerable quantity annually. Local documents of low circulation but national relevance probably exceed 1,000 per year. To have a balanced understanding of educational facilities information both the well-publicized and the obscure documents should be collected for information analysis.

(2) In general, the documents are obtainable at low cost for data storage purposes but some (possibly five to ten percent) are available only by photocopy.

(3) Participation of the national professional society for the subject field (NCSC) contributed many values including technical competence, cooperation of specialists and sources, and quality control.

(4) The system of qualified field workers who helped locate documents and prepare resumes was practical and productive of satisfactory results.

(5) Engaging school plant planning specialists as abstractors provided a quality level of technical competence in screening and evaluating research and research-related materials.

(6) The abstract journal has proven the most popular result of the pilot study to date, and membership of the National Council on Schoolhouse Construction wish to have it continued.

(7) As the NCSC ABSTRACT SERVICE became known, the volume of demand for retrieval and correspondence increased. It appears that public service such as information retrieval and research analysis will become the heaviest part of the work load in the future.

(8) Geographic localism of demand for information services indicates that dissemination of both technique and substantive information should occur largely through regional conferences and similar means.

SUMMARY

The NCSC ABSTRACT SERVICE was funded as a pilot study of ERIC-USOE. It was jointly sponsored by the National Council on Schoolhouse Construction and the University of Houston. The project with offices in the University of Houston was established in September 1965.

The predetermined goal of the project was to obtain and process research or research-related documents in the area of educational facilities. These documents were to be of low circulation but national relevance produced since 1960. The project was also to experiment and develop systems for information collection and processing for retrieval in the ERIC program.

The structural organization of the project consisted of an Advisory Board appointed by the National Council on Schoolhouse Construction; the Principal Investigator who was chairman of the Research Committee of the professional society; an office staff comprised of a full-time Managing Editor and secretary, together with occasional employment of qualified graduate assistants; and a staff of 32 school plant specialists who were members of the professional society and volunteered their services to assist in locating and evaluating materials and preparing abstracts of selected documents on ERIC resume forms.

Summary records were kept of management methods including types of documents located, control records, instruction and leadership of field workers, standards established, and editorial work. The documents abstracted were indexed for cross-reference or data retrieval.

One thousand appropriate selected documents were processed and sent to ERIC with accompanying resume forms at the close of the year. An additional stock of research or research-related documents was obtained for subsequent processing. The NCSC ABSTRACT SERVICE has published a periodical abstract journal based on the prepared resumes. A volume of inquiries has been received for research or research-related information in the area of educational facilities.

EXHIBITS

I. NCSC ABSTRACT SERVICE Information Release

II. Roster of Abstractors

III. ERIC Document Resume

IV. Instructions for Abstractors

V. Sources for NCSC Abstractors

VI. Request for Documents

VII. Copyright Release

VIII. Master Control Record

IX.-A, B. NCSC Abstract Journal

EXHIBIT I

N C S C

ABSTRACT SERVICE

NATIONAL COUNCIL ON SCHOOLHOUSE CONSTRUCTION
RESEARCH COMMITTEE:
WALLACE H. STREVELL, CHAIRMAN
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The NCSC Abstract Service is an editorial office established under the supervision of the National Council on Schoolhouse Construction and the U. S. Office of Education.

The editorial office of the service is located in the University of Houston. The function of this office is to supply documents and abstracts to an information storage and retrieval system known as the Education Research Information Center (ERIC) in the U. S. Office of Education. The National Council on Schoolhouse Construction, a professional organization of school plant specialists, provides the qualified abstracters who screen the documents and prepare the abstracts.

The scope of research and development documents acceptable for abstracting is as follows:

(a) The information is restricted to educational planning for school building and may date back to 1960. Research prior to 1960 can be included if it is of significant value.

(b) The character of documents may be unpublished material or published material of relatively low circulation (significant items that may not be readily known to the potential user).

(3) The material must have national relevance and pertinence. The research techniques used must be of high quality.

The abstracts are processed and, with two original copies of the documents, are delivered to ERIC. There the abstracts and originals are indexed and put on microfiche for dissemination purposes. A copyright release is required for ERIC.

Abstract statements, recognizing the name of the abstracter, are published in a periodical of the National Council on Schoolhouse Construction for benefit of members of the organization.

11/3/65

EXHIBIT II

N C S C

ABSTRACT SERVICE

NATIONAL COUNCIL ON
SCHOOLHOUSE CONSTRUCTION
RESEARCH COMMITTEE:
WALLACE H. STREVELL, CHAIRMAN
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January 20, 1966

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EXHIBIT III

OE 6000 (9-65)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D.C.

ERIC DOCUMENT RESUME

DATE OF RESUME

1. ACCESSION NO.

2. ERIC SATELLITE CODE

3. CLEARING HOUSE CONTROL NO.

4. SOURCE

5. TITLE

6. AUTHOR(S)

7. DATE

8. PAGINATION

9. REFERENCES

10. REPORT/SERIES NO.

11. CONTRACT NO.

12. PUBLICATION TITLE

13. EDITOR(S)

14. PUBLISHER

FOR INTERNAL ERIC USE ONLY

(Do Not Write In Space Below)

DATE RECEIVED

IS MICROFILM COPY AVAILABLE? *(Check one)*
☐ Yes ☐ No

IS DOCUMENT COPYRIGHTED? *(Check one)*
☐ Yes ☐ No

HAS COPYRIGHT RELEASE BEEN GRANTED? *(Check one)*
☐ Yes ☐ No

DATE, NAME, AND COMPLETE ADDRESS OF AUTHORITY
TYPE OF RELEASE

15. ABSTRACT *(250 words max.)*

16. RETRIEVAL TERMS *(Continue on reverse)*

17. IDENTIFIERS

INSTRUCTIONS FOR COMPLETING ERIC DOCUMENT RESUME

The resume is to be used for storing summary data and information about each document acquired, processed, and stored within the ERIC system. In addition to serving as a permanent record of each document in the collection, the resume is also the primary means of dissemination. The upper left corner of the form (fields 1-14) is designed to conform to descriptive cataloging standards set forth by the Committee on Scientific and Technical Information (COSATI). Read the following instructions and complete the resume as directed.

A. GENERAL INSTRUCTIONS:

1. Read each entry point. If any point is not applicable, place "N.A." in the appropriate field. Except for those which you are instructed to leave blank, all fields must be completed with either the required information or "N.A."
2. Enter date of completion of the resume in space provided in upper right corner.
3. Entry must fit into space provided; if necessary use standardized abbreviation as cited by the American Psychological Association *Publication Manual*. (*Publication Manual* may be obtained from the American Psychological Association, Order Department, 1200 17th Street, NW., Washington, D.C. 20036.)

B. SPECIFIC INSTRUCTIONS:

Field 1. Accession No.: Leave blank. A permanent ED number will be assigned to each report and attendant documentation records as they are processed in the ERIC system.

Field 2. ERIC Satellite Code: Enter 3-digit code number assigned by ERIC to clearinghouse operation. If no code has been assigned, leave blank.

Field 3. Clearinghouse Control No.: If you are acting as a clearinghouse, enter the identifying number you have assigned to the document.

Field 4. Source: Enter corporate author, corporate source, or institutional affiliation of the author who originated the document. Include complete name and complete address of source, where possible. The Atomic Energy Commission *Corporate Author Entries*, TID-5059 (6th Rev.) will be the authority for corporate source citations. (AEC *Corporate Author Entries* may be obtained from Clearinghouse for Federal Scientific and Technical Information, National Bureau of Standards, U.S. Department of Commerce, Springfield, Virginia.)

Field 5. Title: Enter full document title. If document comprises only a portion of the total publication or release, refer to field #12. Include subtitles if they add significantly to information in the title proper.

Enter volume numbers or part numbers, where applicable, as an added entry following the title.

If the document has been identified with a project number, enter the project number as an added entry following the volume or part numbers.

Include the type of report (whether proposal, in-progress, final, follow-up) as an added entry following the project number, where applicable. Following the type of report, enter the inclusive dates covered by the report, by month and year. (Example: 1/63 - 7/65.)

Field 6. Author(s): Enter personal author(s) (corporate author is entered in field #1), last name first. (Example: Doe, John.) If two authors are given, enter both. In the case of three or more authors, list only the principal author followed by "and others," or, if no principal author has been designated, the first author given followed by "and others." (Example: Doe, John and others.)

Field 7. Date: Enter date of release of document by month and year. (Example: 12/65.)

Field 8. Pagination: Enter total number of pages of document, including illustrations, appendices, etc. (Example: 115 p.)

Field 9. References: Enter number of references cited in the bibliography of the document. (Example: 106 ref.)

Field 10. Report/Series No.: Enter any unique number assigned to the document by the publisher or corporate source. (Example: OE-53015; LX-135.) Do not enter project numbers; these are added entries field #5.

Also enter journal citations by name of journal, volume number, and pagination. (Example: NAEB Journal, v. II, pp. 52-73.) Do not include date; date is entered in field #7.

Field 11. Contract No.: If document has been supported by the U.S. Office of Education, enter the OE contract number.

Field 12. Publication Title: If document abstracted comprises only a portion of the total publication or release, enter complete title of publication. (Examples: Four Case Studies of Programmed Instruction; The Automation of School Information Systems.) For journal titles, spell out any abbreviations. (Example: National Association of Educational Broadcasters Journal.)

Field 13. Editor(s): Enter editor(s) last name first. (Example: Doe, Mary.) If two editors are given, enter both. In the case of three or more editors, list only the principal editor followed by "and others," or, if no principal editor has been designated, the first editor given followed by "and others." (Example: Doe, Mary and others.)

Field 14. Publisher: Enter name and location (city and state of publisher.
(Example: McGraw-Hill, New York, New York.)

Field 15. Abstract: Enter abstract of document, with a maximum of 250 words.

Field 16. Retrieval Terms: Enter conceptually structurable terms which, taken as a group, adequately describe the content of the document. If terms do not fit into space provided on recto, use space allotted on verso for additional terms.

Codes: Leave blank. Codes will be assigned for internal retrieval purposes.

Field 17. Identifiers: Enter all terms which would not fit into a structured vocabulary. Examples are: trade names, equipment model names and numbers, organizations, project names (Project Headstart, Project English), code names, code numbers.

16. RETRIEVAL TERMS *(Continued)*

U.S. GOVERNMENT PRINTING OFFICE : 1965 O - 791-625

EXHIBIT IV

NCSC

ABSTRACT SERVICE

NATIONAL COUNCIL ON
SCHOOLHOUSE CONSTRUCTION
RESEARCH COMMITTEE:
WALLACE H. STREVELL, CHAIRMAN
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TENTATIVE INSTRUCTIONS FOR ABSTRACTERS
November 3, 1965

1. An abstract of a document is an objective summary of the contents of the document. It does not include a personal evaluation.

2. An abstract should be a brief description of the scope and purpose, format and content, and interpretation and contribution of a document. Any conclusions, recommendations, and limitations contained in the document should be included. It will be helpful for the abstracter to note table of contents, chapter summaries, and conclusion to obtain an over-all impression of the document content.

3. An abstract (for our purposes) must not exceed 250 words and may be much shorter.

4. Of great importance is an easily understandable, precise writing style that will transmit the desired information. Avoid a style that reads like jotted notes on a telegram. The opening statement of the abstract should not merely rephrase the title of the paper.

5. The scope of documents acceptable for abstracting is as follows:

   (a) The research and development school plant information reported may date back to 1960 as a general rule. Research prior to 1960 may be included if it is of significant value.

   (b) The character of documents may be unpublished material or published material of relatively low circulation (significant items that may not readily be known to the potential user).

   (c) The material must have national relevance and pertinence. The research techniques used must be of high quality.

6. The following outline may be helpful in recognizing the full scope of the school plant field wherein documents may be abstracted:

   (a) Determining School Plant Requirements

      (1) Planning aids and procedures
      (2) Educational programming
      (3) Appraisal of existing school plants
      (4) Determining school population
      (5) Determining building and spaces required
      (6) Determining equipment required

(b) Architectural Services

   (1) Architect's contract (see also legal aspects)
   (2) Plans and specifications
   (3) Selection of architect
   (4) Supervision of construction

(c) Legal Aspects

   (1) Acquisition and management of school sites
   (2) Bidding
   (3) Community use of school plant
   (4) Contracts
   (5) Insurance
   (6) Legislation for buildings
   (7) School plant financing (see also finance)

(d) Finance

   (1) School resources
   (2) Operation
   (3) Maintenance
   (4) Materials
   (5) Comparative costs
   (6) Insurance
   (7) Fees and professional services
   (8) Bids and bonds
   (9) Economies

(e) The Building--General and Technical Aspects

   (1) General building characteristics
   (2) Construction details
   (3) Construction materials
   (4) Service facilities
   (5) Safety
   (6) Lighting
   (7) Color
   (8) Sites
   (9) Food preparation facilities
   (10) Health service facilities
   (11) Administrative service facilities

(f) The Building--Instructional Rooms and Special Purposes

   (1) Nursery
   (2) Kindergarten
   (3) Elementary
   (4) Secondary
   (5) College and university
   (6) Special schools

(g) Operation and Maintenance

   (1) Selection and training of personnel
   (2) Maintenance of plant
   (3) Accounting for supplies and maintenance
   (4) Modernization and rehabilitation

7. The NCSC Abstract Service will compensate the abstracters for their expenses of postage, typing abstracts, and locating documents by reimbursing them the amount of one dollar per abstract (reimbursement made in January and June annually). If unusual expenses are anticipated in locating a document, the abstracter should first contact the managing editor.

8. Where documents are expensive or difficult to obtain, write to Mrs. Pauline Oliver, NCSC Abstract Service and she will endeavor to obtain a copy for the abstracter.

9. The abstracter will fill in Fields 4 through 15 on the ERIC Document Resume. Detailed instructions for this work are on the back of the ERIC Document Resume sheet (see attached).

10. The abstracters will not be required to supply retrieval terms or identifiers (Fields 16 and 17).

11. If a document is copyrighted a release must be obtained. Please call to the attention of the managing editor all instances of copyright so that she can write the source for the necessary release.

12. A copy of the ERIC Document Resume must be submitted for each abstract. These forms will be supplied to the abstracters by Mrs. Pauline Oliver, Managing Editor of the NCSC Abstract Service.

13. The abstracts will preferably be typewritten on the ERIC Document Resume. If handwritten, the abstract statement should be attached to the ERIC Document Resume.

14. The abstracter must supply at least one copy, but preferably two copies, of the document with the abstract. Two copies are desired since eventually two copies have to be sent to ERIC by the NCSC Abstract Service.

15. The managing editor will, from time to time, furnish particular documents asking that they be abstracted.

16. Abstracters will locate suitable documents on their own initiative. The managing editor will also designate specific sources of documents for each abstracter. The abstracter will then maintain continuous contact with such source.

17. The NCSC Abstract Service office will retype all ERIC Document Resume forms sent to ERIC and will furnish a copy to the National Council on Schoolhouse Construction in which the name of the abstracter and his institution will be recognized.

18. All materials and requests should be addressed to:

Mrs. Pauline Oliver, Managing Editor
NCSC Abstract Service
University of Houston
Houston, Texas 77004

EXHIBIT V

Sources for NCSC Abstractors

American Association for the Advancement of Science

American Association of Health, Physical Education and Recreation

American Association of School Administrators

American Association of School Librarians

American Consultants in Education

Adult Education Association

American Educational Theater Association

American Industrial Arts Association

American Institute of Architects

American Institute of Consulting Engineers

American Institute of Decorators

American Institute of Electrical Engineers

American Institute of Planners

American Institute of Plant Engineers

American Institute for Research

American Library Association

American School Food Service

American Society of Civil Engineers

American Society of Heating, Refrigerating and Air-Conditioning Engineers

American Society of Landscape Architects

American Society of Mechanical Engineers

American Society of Refrigerating Engineers

American Society of Safety Engineers

American Society for Testing Materials

American Standards Association

American Vocational Association

Audio-Visual Commission on Public Education

Better Light, Better Sight

Building Research Institute

Building Research Advisory Board

Caldwell and Caldwell & Charles R. Haile Associates, Inc., Planning Consultants

Child Study Association of America

Construction Specifications Institute

Council of Chief State School Officers

Educational Facilities Laboratories

Educational Research Services, Inc.

F. W. Dodge Corporation

Illuminating Engineering Society

Institute of Sanitation Management

National Academy of Sciences

National Association of Physical Plant Administrators of Universities and Colleges

National Education Association

National Educational Television and Radio Center

National Fire Protection Association

National Health Council

National Safety Council

National Sanitation Foundation

National School Boards Association

National Science Foundation

National Study of Secondary School Evaluation

National Society of Professional Engineers

New England Association of Colleges and Secondary Schools

Northeast Council on Schoolhouse Construction

Odell-MacConnell Associates, Educational Consultants

Painting and Decorating Contractors of America

School Facilities Council

Scientific Apparatus Makers Association

Society of Motion Picture and Television Engineers, Inc.

Southwest Research Institute

Standards Engineers Society

Texas Association of School Boards

Texas Research League

Colleges and Universities

University of Alabama, Tuscaloosa
  Bureau of Educational Research

Alabama Polytechnic Institute, Auburn

Arizona State College, Tempe
  Bureau of Educational Research and Field Services

University of Arkansas, Fayetteville

Ball State Teachers College, Muncie

Baylor University, Waco

Bowling Green State University
  Bowling Green, Ohio

Boston University, Boston

Bradley University, Peoria

Brigham Young University, Provo

University of Buffalo, Buffalo
  Educational Research Center

Butler University, Indianapolis
  Bureau of Research and Clinical Services

University of California, Berkeley
  Field Service Center

Central Michigan College of Education
  Mt. Pleasant

City College of New York, New York City

University of Chicago, Chicago

Claremont Graduate School, Claremont

Clemson Agricultural College,
  Clemson, South Carolina

University of Colorado, Boulder

Colorado State College, Greeley

Columbia University
  Institute of Field Studies

University of Connecticut, Storrs

Cornell University, Ithaca
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Central Washington College of Education,
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University of Denver
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University of Florida, Gainesville

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Washington, D. C.

Gonzaga University, Spokane

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Center for Field Studies

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Howard University, Washington, D. C.

University of Illinois, Urbana

Illinois State Normal University, Normal

Indiana University, Bloomington
Division of Research and Testing

Indiana State Teachers College, Terre Haute

State University of Iowa, Iowa City

Kent State University, Kent,Ohio

University of Kentucky, Lexington
Bureau of School Service

Long Beach State College, Long Beach

Lehigh University, Bethlehem

Louisiana State University, Baton Rouge
Bureau of Educational Materials and
Research

Marshall College, Huntington, W. Va.

University of Maryland, College Park

Memphis State University, Memphis

University of Miami, Coral Gables

Miami University, Oxford, Ohio
Bureau of Educational Field Services

University of Michigan, Ann Arbor

Michigan State University, East Lansing
Bureau of Educational Research

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Cambridge

Montana State University, Missoula
Bureau of Educational Research and
Services

University of North Carolina, Chapel Hill
Bureau of Educational Research and
School Services

North Carolina State College,. Raleigh

University of Nebraska, Lincoln

Nebraska State Teachers College, Kearney

University of Nevada, Reno

University of New Mexico, Albuquerque

University of North Dakota, Grand Forks
Bureau of Educational Measurement
and Research

Northern Illinois State College, DeKalb

Northern Missouri State Teachers College,
Kirksville

Northwestern University, Evanston

Northern State Teachers College,
Aberdeen,South Dakota

North Texas State College, Denton

New York University, New York City

Ohio University, Athens
  Center for Educational Service

Ohio State University, Columbus

University of Oklahoma, Norman

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College of the Pacific, Stockton

George Peabody College for Teachers, Nashville
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University of Pennsylvania, Philadelphia
  Educational Service Bureau

Pennsylvania State University, State College

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This initial release of abstracts produced by the NCSC Abstract Service is a supplement to the NCSC technical publication. It is planned that such a supplement will appear quarterly. The NCSC Abstract Service, an information storage and retrieval system, is made up of 32 qualified members of the Council who locate, evaluate, and abstract school plant research and planning information of national relevance. The documents listed in the report are unpublished or of relatively low circulation. They are abstracted for dissemination to membership of the Council and for a continuing up-to-date deposit in the U. S. Office of Education.

2 Brubaker, Lowell Kurtz
OPENING NEW HIGH SCHOOLS
University of Southern California
Los Angeles, California. January, 1963, 211 pp.

Major findings of the study included: (1) The district curriculum pattern is generally followed in new high schools. (2) Appropriations in the first year for instructional supplies should be increased between two and four times the average amount expended in an established high school. (3) The most satisfactory combination of grades with which to open a new high school is nine, ten, and eleven. (4) Involvement of students in opening the new high school enhances their morals. (5) A dynamic program of community relations is necessary to obtain acceptance of the new high school by the community. (6) Transfer and employment of personnel are practiced on a policy basis. (7) The principal is needed on the job full time one year before opening date. (8) A balance of experience, age, male and female in the faculty is desirable. (9) Policies and procedures established prior to opening date are necessary for the functioning of a new high school. (10) A period of two and a half years is necessary to plan and construct a high school. (11) A priority of facilities is necessary when a complete high school plant is not built. Some of the major conclusions set forth were: (1) Advance plans made on a scheduled basis are necessary for the satisfactory opening of a new high school. (2) The amount of funds per average daily attendance necessary to provide adequate supplies for a new high school is in excess of that amount required for an established high school. (3) The assignment of the principal one year before opening date is strategic to the satisfactory opening of a new high school. (T. E. J.)

3 Campbell, Stanley Clinton
RELATIONSHIP BETWEEN THE COMPREHENSIVENESS OF SCHOOL PLANT PLANNING PROCEDURES AND THE QUALITY OF RESULTANT SCHOOL PLANTS
University of Wisconsin
Madison, Wisconsin. December, 1961, 452 pp.

Major conclusions of the study were: (1) A negative relationship was found between the comprehensiveness of planning and juror evaluations of plant quality: two of the three districts which ranked high in planning ranked low in quality, and vice versa. (2) A negative relationship prevailed also between comprehensiveness of planning evaluations of plant quality by teachers, but a positive relationship was found between the planning factor and evaluations of quality by principals. (3) A negative relationship was revealed between comprehensiveness of the school building survey and willingness of the electorate to finance the building program. It appears that wide participation and prudent selection of survey procedures are more effective in convincing the public of school building needs than the utilization of a large number of survey techniques. (4) A comparison of the extent of teacher participation in planning and their evaluation of plant quality revealed that a positive relationship existed. Teachers who participated to a greater extent in the planning program were more satisfied with the resultant facilities. Responses by teachers revealed that the most serious deficiencies in the new school plant pertained to inadequate control of light, heat, and sound, and lack of flexibility to meet the needs of emerging educational practices. (5) Failure to prepare written educational specifications appears to be the greatest weakness in school plant planning programs. (6) Many complex factors, involving patterns of human relationships are involved in the school plant planning process. Each planning situation is unique, and factors which tend to influence quality tend to vary from one situation to another. (T. E. J.)

5 Cory, Paul
A STUDY OF THE FIRE INSURANCE ON PUBLIC SCHOOL BUILDINGS IN FLORIDA
Florida State University
Tallahassee, Florida. November, 1962, 159 pp.

The collection and analysis of the data included the following findings: (1) Fire insurance on all school buildings of over three classrooms is required by statute. (2) No uniformity of method for obtaining insurance exists in the Florida school system. Thirty percent of the counties use bidding to secure their insurance; 13 counties have 10 policies or more with different insurance companies, with one county using 110 different policies, to cover their insurance needs. (3) Florida's school boards expended $13,345,417 for fire and extended coverage insurance premiums for the 21-year period, 1940-1961, and received benefits totaling $3,254,094, which results in a 24.37 percent cost-loss ratio. (4) The cost-loss ratio for the 10-year period 1951-1961 was 17.6 percent for the public schools as compared with the total of all Florida property insured by all insurance companies cost-loss ratio of 35 percent for the same period. (5) A self-insurance program is feasible with all prerequisites satisfiable. Hypothetical self-insurance plans were developed, based on 80 percent of commercial premium rates which gave an initial 20 percent reduction in premium, also one was developed with a base of 80 percent commercial rate for the first five years, 70 percent for the next five years and 60 percent for the last five years of the 15-year plan. With the reductions in premiums, the accumulation in reserve would amount to $14,000,000 and $12,000,000 respectively. These estimations projected annual savings to the school boards of at least $500,000 annually. (T. E. J.)

157 Covina-Valley Unified School District
BLUEPRINT FOR TOMORROW-TODAY
Educational Facilities Laboratories, Inc.
Stanford, California. August, 1963, 12 pp.

This research, supported by a grant from Educational Facilities Laboratories, is an attempt to plan schools for the district that would combat obsolescence by building in flexibility to accommodate educational changes as they occur. The grant permitted use of outside consultants as well as local administrators and teachers. The three objectives were as follows: (1) more opportunities for individual instruction, (2) better use of teacher skills, and (3) flexible spaces to accommodate the latest methods and equipment. The flexibility provided for large group instruction, small group instruction, and independent study. The result was the development of three learning centers, namely, Humanities, Math/Science, and Instructional Resource Center, plus other supporting facilities including art, crafts, business education, home economics, music, industrial arts, physical education, food services,and administration. The South Hills High School involves a variety of shapes and sizes of rooms with opportunities for division of spaces into smaller areas. The cost of the school, built in 1964, compared favorably to two other schools, built in 1956 and 1960, due to the efficiency of planning. (J. H. H.)

447 DESIGNING THE SCHOOL PLANT FOR ECONOMY
Economy Series No. 4
State Department of Education
Hartford, Connecticut. June, 1961, 59 pp.

Presents standards or steps to planning and design of functionally adequate and economical school buildings. Determining the purpose and nned for space, and the preparation of educational specifications are the beginning steps. From the educational specifications the architectural firm develops preliminary drawings and studies which provide cost, size, and quality data. The aesthetic or "character" factors are developed by the architect. Various cost comparisons should be used. The three common comparisons are cost per square foot, cost per pupil, and area per pupil. Space utilization analysis is important because non-productive space is just as expensive to build, operate, and maintain as productive space. Such factors as circulation, utilization, and compactness can contribute to economy. Special areas for community use and combination use such as auditoriums, cafeterias, stage, music, classroom laboratory, gymnasium - auditorium, and multipurpose rooms can affect economy. Single-story vs. multi-story comparisons are made indicating the advantages and disadvantages. Environmental factors and their control are discussed in some detail. Relationships of elements are important for efficiency, including placement of the facility on the site, treatment of site, and projecting all planning for future expansion and change in curriculum, and innovations and trends in instruction. (D. O. B.)

9 Douthitt, Ira Arthur
A STUDY OF THE PRESENT STATUS OF CLASSROOM FURNITURE IN SELECTED SCHOOLS
University of Tennessee
Knoxville, Tennessee. September, 1962, 191 pp.

Criteria were developed relative to the following qualities: (1) Flexibility, (2) Comfortableness, (3) Attractiveness, (4) Ease of Maintenance, and (5) Safety.

Criteria met by the furniture appraised in selected classrooms were as follows: three classrooms met all criteria; fourteen classrooms met five criteria; fifteen classrooms met four criteria; seventeen classrooms met three criteria; and one classroom met only two criteria. Criteria not met by the furniture appraised in selected classrooms were the following: twenty-seven classrooms did not meet the Flexible criterion; forty-three classrooms did not meet the Comfortable criterion; eighteen classrooms failed to meet the Attractive criterion; one classroom did not meet the Ease of Maintenance criterion. The Safety criterion was met by all classrooms. (T. E. J.)

153 Educational Facilities Laboratories
A COLLEGE HEALTH CENTER, Case Studies of Educational Facilities No. 6
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. 32 pp.

Data are offered showing that health facilities are usually inadequate and in some cases non-existent at small independent liberal arts colleges and teachers' colleges. Three colleges decided to pioneer a study to develop a model student health center for small liberal arts colleges---Colorado College, Colorado Springs; Knox College, Galesburg, Illinois; Wittenberg University, Springfield, Ohio. The Educational Facilities Laboratories gave $10,000 for the project after making a random check, and a reviewing studies by the American Health Association, 1953 and the American Medical Association Council of Medical Services, 1961. At a series of conferences in 1961 and 1962, college representatives and the architectural firm, Caudill, Rowlett and Scott, Houston, Texas, agreed upon (a) a keep-the-student-in-school kind of medical set-up (b) central control by one duty nurse, and (c) possible internal expansion in case of upswing in patient load. The architectural solution was a round building with three concentric rings; the outer ring contains patients' rooms, entrance lobby, and examination and consultation rooms, and a room for x-ray facilities. The inner ring is a study area for ambulatory patients and for expanding bed area, if necessary. The center ring, the nurses area, is raised so as to prevent a view across the study area making possible control of mens' and womens' at the same time. Roof design and movable, folding partitions provide maximum flexibility. Seventeen schematics and three pages of perspectives clearly explain the plan. A rectilineal schematic is also presented. (W. S. B.)

185 Educational Facilities Laboratories
EFL COLLEGE NEWSLETTER, No. 2
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. 4 pp.

A brief summation of current research on language laboratories. Sections include descriptions of critical factors in selection of equipment. Audio quality has been the subject of two years of intensive investigation at MIT's Department of Modern Languages. The authors' conclusions on the necessary frequency range and the cost involved in purchasing a language laboratory are offered. Another research project under way at Purdue University's Department of Modern Language is reviewed. Teacher-student ratio, remote controlled tape recorders, and simultaneous feedback are the subjects of investigation. (R. L. F.)

154 Educational Facilities Laboratories
NEW BUILDING ON CAMPUS, Six Designs for a College Communications Center
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. 1963, 60 pp.

Presents graphic interpretations by six architectural firms of answers to questions proposed by Rensselaer Polytechnic Institute in the planning of an instructional research and communications center as part of a new science complex. The Rensselaer Institute posed these problems: (1) To teach more students with fewer faculty members; (2) To teach them more effectively; (3) To reduce the overall cost of education. Architects were asked to plan the use of mechanical teaching devices so as to provide: (1) Bigger, better equipped classrooms specifically designed to make the most of all available instructional aids; (2) Studios for producing specialized teaching materials ranging from slides to video tapes; (3) A library of stored materials for reference or review. Tables of affinities are offered in graphic form covering: (1) Public Space; (2) Instructional space; (3) Televsion production; (4) Motion picture production; (5) Communications research; (6) Administration; (7) General service; (8) Maintenance. Architectural firms presenting designs were:

Perkins and Will, Chicago, Illinois, the winning design.
The Architects' Collaborative, Cambridge, Massachusetts.
O'Neil Ford and Associates, San Antonio, Texas.
Hellmuth, Obata and Kassabaum, St. Louis, Missouri.
Kump Associates, Palo Alto, California
Richard W. Snibbe, Architect, New York, New York.

(W. S. B.)

198 Educational Facilities Laboratories
PROFILES OF SIGNIFICANT SCHOOLS, Montrose Elementary School, Laredo, Texas
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. 1960, 16 pp.

The population of the Montrose Elementary School at Laredo, Texas, mainly Spanish speaking, is from an economically depressed section of a hot, dusty city. School attendance fluctuates greatly as many older children drop out in the spring and fall, to work on farms. Because of language problems and poor educational background, they also drop out when school work seems too difficult. The educational and architectural problems were (1) to provide a curriculum and teaching procedures tailored to the specific needs of the students and (2) to design a building which would effectively support the educational program and provide an environment which, itself, would draw students to the school. Architecturally, the school is divided into four separate one-story buildings called quadruplexes. Each quadruplex is a closed unit, each with a cooling system providing a cool, dust-free atmosphere. Quadruplexes are arranged so as to have direct access to a shaded play or teaching space. To shade the outdoor area, the architects used plastic umbrella-like canopies. Testing of the plastic material was accomplished in conjunction with Texas Engineering Station at College Station, Texas. The material admits twenty percent of sunlight. Caudill, Rowlett and Scott, architects, present five schematics, eight photographs, and an elevation of the Montrose Elementary School. (W. S. B.)

156 Ellsworth, Ralph E. and Wagener, Hobart D.
THE SCHOOL LIBRARY
Facilities for Independent Study in the Secondary School
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. September, 1963, 142 pp.

Emphasizes the changing role of libraries in view of the changing goals, methods,and schoolhouses in a changing educational program. The shifting emphasis is on self-instruction and independent study. In order to achieve this emphasis the school library becomes the focal point and this report concerns itself with the creation of good working libraries. The library usually involves three elements: the materials, the staff, and the physical setting. It should be thought of as a system rather than a single enclosed room. Among the various kinds of school library systems are: (1) a single, inclusive, central library, (2) a dual system, one for elementary and one for secondary, (3) a central library with truck service, and 4) a decentralized system. The report attempts to break down the "cells and bells" organization to allow more opportunity for independent study. The implications of team teaching, and automated and self-teaching devices are explored as well as the new advances in subject matter: science, mathematics, and languages. The importance of carrels is explored in light of the need for facilities for independent study. A most important part of the study involves the physical contents and layouts, both for the teaching staff and the readers. Suggestions are made as to size, circulation, layout, and environmental elements. A large portion shows schematic plans and arrangements for carrels and arrangements for central libraries. (J. H. H.)

21 Engman, John D. and others
SCHOOL PLANT MANAGEMENT FOR SCHOOL ADMINISTRATORS
Gulf School Research Development Association
3801 Cullen Boulevard
Houston 4, Texas. 1962, 234 pp.

For those school officials, including teachers and others preparing for administrative positions, a well-defined and diversified listing of topics pertaining to the managerial and executive decision-making phase of school administration are discussed, enlarged, and explored thoroughly by qualified writers, most of whom are in actual jobs. While the setting is a specific geographical area, nevertheless the sage comments and actual experiences are pertinent to school districts, large or small, in any area. Of particular significance is the trend of thought that in line and staff organization, the status of collateral and auxiliary services occupy similar weight to that of curriculum and personnel. Highly informative in content. The 15 chapters of this document include topics such as: Personnel Policies, Custodial Services, Operational Maintenance, Preventive Maintenance, Plant Utilization, Community Relations, Modernization, and School Business Office. There are 16 figures which include flow charts, inventories, order forms, applications and appraisal forms. (T. S. G.)

83 Fortune, William Martin
A STUDY OF THREE ELEMENTARY SCHOOLS CONSTRUCTED FROM A SINGLE
MODIFIABLE PLAN IN THE EDMONDS, WASHINGTON SCHOOL DISTRICT
University of Washington
Seattle, Washington. 1965, 154 pp.

This thesis was a report of a controlled experiment, set up by the State Board of Education, to test the feasibility of the use of stock or modifiable stock plans in the construction of school facilities. The test involved three elementary schools in the Edmonds, Washington, School District. The only savings reported were in architectural services but these were offset by adaptations to the various sites. Stock plans tended to nullify competitive bidding by giving an advantage to the first successful bidder who had constructed forms for pouring concrete in Hyperbolic Paraboloid roofs. Based on this study, it would appear that a stock plan or modifiable stock plan should be one which is highly flexible in terms of future educational demand, be simple in design, and be able to utilize materials which are common to construction and are readily available. A plan made up of multiple buildings appears to be better for repeated construction than a single unit plan. (J. H. H.)

188 Gilliland, John W. (Director)
PROFILE OF A SIGNIFICANT SCHOOL, Athens Junior High School,
Athens, Tennessee
School Planning Laboratory
University of Tennessee
Knoxville, Tennessee. 1965, 20 pp.

This is one of a series of publications concerning new schools in Tennessee that seemingly have certain features that make them different from the traditional type. New concepts of design and construction contribute to the significance of the new junior high school at Athens, Tennessee. This Profile does not attempt to go into detail on all the features of the school plant. Rather, it presents a well-illustrated description of certain features which do have major significance. According to the AASA 1965 Architectural Exhibit Jury these features are: Instructional materials center, teachers' work center, flexible teaching space, and auditorium specially designed for use of projection equipment. Window space is sparingly used and many floor areas are carpeted. The building was designed around nine circular focal points, an area of 107,000 square feet, capacity of 1000, at a cost of $14.36 per square foot. The school plant houses grades seven, eight, and nine. (A. B. G.)

194 Gilliland, John W. (Director)
PROFILE OF A SIGNIFICANT SCHOOL, Rockwood Elementary School,
Rockwood, Tennessee
School Planning Laboratory
University of Tennessee
Knoxville, Tennessee. April, 1964, 16 pp.

A graphic, descriptive booklet on the planning, construction and functioning of a school for grades kindergarten through the sixth grade. The building of

41,756 square feet is located on a site of approximately eight acres, on a ridge overlooking the town---designed to fit into the beauty of the landscape, but also, to contribute to the needs and comfort of the children. Informality and flexibility were the keynotes of planning plus utilization of natural beauty. The building includes rooms for the administration, music, library, and auditorium activities as a core surrounded by 16 classrooms, all similar. Significant features are an adjoining open play shelter, air conditioning, carpeting, "satellite" feeding, and the control of light, heat, and sound...all at a cost of $10.17 per square foot. (A. B. G.)

12 Gilmore, Henry Martin, Jr.
THE RELATIONSHIP BETWEEN NEW INSTRUCTIONAL PROGRAMS AND CERTAIN SELECTED FLEXIBLE FEATURES OF SCHOOL BUILDINGS
University of Washington
Department of Printing
Seattle, Washington. 1965, 181 pp.

The stated purposes of the thesis were (1) to determine the manner in which new instructional programs utilized flexible features, and (2) to determine the manner in which the flexibility of school buildings was a factor in the establishment and development of new instructional programs. Conclusions indicate flexibility is needed in new programs and that development of new programs need flexibility. Eighteen recommendations include continuous floor and ceilings, large spaces, individual study spaces, movable partitions, and non-load-bearing walls free from utility lines. (J. H. H.)

92 Harper, Joe W.
A STUDY OF COMMUNITY POWER STRUCTURE IN CERTAIN SCHOOL DISTRICTS IN THE STATE OF TEXAS AND ITS INFLUENCE ON BOND ELECTIONS
North Texas State University
Graduate School
Denton, Texas. 1965, 210 pp.

The general purpose of this study was to examine the influence of community power structure upon school bond elections. The procedures used were modifications of the power attribution technique. Sociometric data were obtained to disclose persons who generally worked together, in order to study patterns of interaction among community influentials. Certain criticism inherent in the reputational procedures were recognized and adjustments made in the selection processes. The positions and roles of those identified as community influentials were examined in regard to school bond elections in four selected school districts. Structured interviews were used to discover top influentials. This procedure assisted in the validation of the existence of groups involved in school decision making. Affirmatively it was found that: (1) A significant relationship exists between active community influentials and approval of school bond issues; (2) Community power structure plays a significant role in the success of school bond elections; (3) The outcome of a bond election is predictable by sampling the community influentials within the school district; (4) Community influentials who exert power in other community activities also exert power in school bond elections. Negatively, it was found that there is no relationship between the attitudes and support of community influentials and success of a school bond election. When the community power structure favors the passage of a school bond election, the superintendent does not play a major role in the success of the election. (C. S. B.)

166 Hase, Gerald J. and Hick, Basil L.
PLANNING THE INDOOR PHYSICAL EDUCATION FACILITIES
New York State Education Department
Division of School Buildings and Grounds
Albany, New York. 1962, 20 pp.

This is one of a series of pamphlets designed and published by the State Education Department and the University of the State of New York. Each pamphlet relates to some specific area of a school plant and its purpose is to aid school officials and architects in their planning of these areas. The mission of Planning the Indoor Physical Education Facilities is to be helpful to those who are preparing plans for new buildings and those who contemplate the improving of physical education facilities in old buildings. Basic consideration is given to the gymnasium and its auxiliary facilities. Location, dimension, constructive materials, equipment, care, and maintenance are discussed in the areas of gymnasium, teaching stations, small activity rooms, swimming pools, dressing and showering rooms, toilets, team rooms, laundry rooms, equipment drying rooms, apparatus rooms, bulletin boards, electrical installations, classrooms, and physical education offices. Dimensional layouts are presented for badminton, shuffleboard, basketball, paddle tennis, volley ball, and deck tennis. (A. B. G.)

19 Hill, Wallace C.
SCHOOL DISTRICT REORGANIZATION IN THE TEXAS GULF COAST REGION
Bureau of Educational Research and Services
University of Houston
Houston 4, Texas. August, 1960, 186 pp.

Acknowledging that there are pertinent concepts and school administrative precepts involved in any plan of school organization, the author applies these to existing school districts and evolves a concise redefining of new school districts. The usual criteria are employed in statistical tables to help clarify the essentials of a school district. For the novice seeking a way to reorganize his school district or districts, this is an excellent guide for steps and procedures. The document contains a glossary of terms and a compilation of laws pertaining to school district organization and consolidation. The recommendations are made in relation to the five criteria of the study; namely tax structure,economy of operation, curriculum development, staffing, and physical assets. The author after analyzing available objective data produces an illustrative Master Plan. (T. S. G.)

93 Holley, C. E.
THE PLANNING AND CONSTRUCTION OF LOUISIANA SCHOOL BUILDINGS
State Department of Education of Louisiana
Baton Rouge, Louisiana. March 1964, 155 pp.

This handbook was prepared by a state-wide committee composed of professional and lay members. The first chapter dealt with the following topics: (1) The Survey, (2) Preliminary Planning, (3) Analysis and Revision of Preliminary Plans and Agreement on Scope of Work, (4) Organization of and Conducting the Campaign for Public Support of the Program, and (5) Legal Procedure for Issuing School Building and Equipment Bonds. Chapters two and three are concerned with Sites and Buildings respectively. Chapter four was divided into the three topics of (1) General-Purpose and Special School Rooms, (2) Areas for Specialized Use, and (3) Areas for Use of All Students. In the remaining three chapters of the handbook, attention was given to (1) Service Systems and Safety Precautions, (2) School Furnishings, and (3) Minimum Recommendations for Shelters in Schools. Essentially the handbook was designed to provide guidelines for school administrators and others in decision-making roles who are responsible for the school building programs in the State of Louisiana. The various recommendations were minimum in nature and did not purport to represent optimum situations. The 1964 bulletin is a revision of an earlier handbook prepared and published in 1954 by the State Department of Education of Louisiana. (T. E. J.)

36 Howland, Richard L. and others
LONG RANGE PLANNING AND EDUCATIONAL SPECIFICATIONS
FOR SCHOOL BUILDING ECONOMY, Economy Series No. 2
Connecticut State Department of Education
Hartford, Connecticut. June, 1962, 40 pp.

Long Range Planning is the second of a series of publications by the Connecti- State Department of Education on school plant planning. Here is a brief, terse arrangement of techniques, graphs, and statements that could be beneficial to school boards and community committees planning new school plants and the best use of present facilities. It is an attempt to present as much useful information as possible in a minimum of words. Educational specifications are stressed as basic to any good school plant planning, and the steps necessary in making sensible educational specifications are stated in simple, understandable statements. Included are formulae for finding pupil capacity and the number of teachers needed for certain facilities. (A. B. G.)

28 Interstate School Building Service
ECONOMIES IN SCHOOL CONSTRUCTION
George Peabody College for Teachers
Nashville, Tennessee. January, 1962, 40 pp.

This document resulted from several meetings involving 29 school plant specialists from a 16-state area. Its purpose is to identify decisions made in the course of a school building program which affect its cost and to provide principles for planning and administering a school construction program which will provide quality school buildings at an economical cost. Special attention is given to financial practices, contractual management, building codes, long-range planning, school sites, building design, construction details, and space considerations. Emphasis is placed on long-range planning as applied to financial needs, educational planning, and site location. It is intended that this bulletin furnish guiding principles for use by school plant planners, superintendents of schools, and local boards of education. (E. J. M.)

375 Johnson, Bettye Underwood
A STUDY OF COLOR IN THE CLASSROOM ENVIRONMENT
University of Tennessee
Knoxville, Tennessee. November, 1963, 132 pp.

Findings of this study indicated that several factors influence color choices for the various schoolhouse areas, but, in general, the following guidelines were set forth: (1) Tints of red, blue, and yellow are suitable for kindergarten and primary areas. Warm tints enhance elementary classroom objectives. (2) Secondary academic classrooms and laboratories, which are settings for clase visual and mental tasks, appear to be most appropriately decorated in tints of blue, blue-green, green, gray, or beige. (3) Corridors should provide visual and psychological relief from classroom decoration. (4) In general, guidance will be enhanced by warm tints. (5) Peach, pink, or turqoise is most desirable for serving and dining areas. (6) Cool or neutral colors for gymnasiums and playrooms will offer less distraction and lessen attention to increased body heat due to intense physical activity. (7) Green, aqua, or peach tints will help provide a desirable setting for activities common to the auditorium. (8) In health service areas, green or neutral shades are most acceptable for physical examination areas while yellow or pink provides a psychological lift for sick bed areas. Other implications were: (1) The prime factor in color choice should be the provision of an appropriate learning environment to enhance the mental, physical, and emotional well-being of the occupants. (2) Selection of colors for the school facility should be individualized to suit the particular school under consideration, taking into account all its unique features. (T. E. J.)

161 Kinne, W. S. Jr., Director
HORIZONTAL AND VERTICAL CIRCULATION IN UNIVERSITY INSTRUCTIONAL AND RESEARCH BUILDINGS
University Facilities Research Center
University of Wisconsin
Madison, Wisconsin. November, 1964, 19 pp.

A research project conducted to better understand the relationship of stairs, corridors, elevators, and escalators to the cost of high-rise university buildings since corridors and stairs account for approximately 20 percent of the gross area of a college building. It was recognized that data for transient classroom population varies from that of stable research or faculty office buildings, and also that intra-building traffic varies from inter-building traffic in regard to time required. The study suggests a formula for determining the "break-even" point in sacrificing land to height. Findings include 1,000 square feet of corridor space for each 250 seats in the classrooms or 4 square feet per station. Waiting space for elevators should be equivalent to sum of the areas of the cabs. Staggering class schedules reduces loads on corridors, elevators, etc. In multi-story college buildings, research and office facilities should be located on upper floors and classrooms spaces on lower floors. (J. H. H.)

376 Kyzer, Barney
A COMPARISON OF INSTRUCTIONAL PRACTICES IN CLASSROOMS
OF DIFFERENT DESIGNS
University of Texas
Austin, Texas. April, 1962, 286 pp.

Within the limitations of the classrooms studied, the following conclusions were made: (1) In five of the seven components of instruction observed, statistically significant differences were found favoring the "open-plan" design schools. These data are indicative of more desirable instructional practices. There is some question, however, as to the extent to which the building design was totally responsible for these differences. (2) The design of classrooms does not appear to affect the utilization of activities in the instructional program. In addition, to point up the similarity in the programs of the schools under investigation, these data might be indicative of current curriculum practices employed by most school systems that do not require spaces other than the classroom cell. (3) Classroom design in the schools studied did not appear to influence the utilization of classroom floor and display area. The evidence tends to indicate that the orientation of individual teachers bears a closer relationship to these considerations than do other factors. While the design of the classroom may be altered, there is little evidence to support the hypothesis that teachers will change their perceptions of space. On the contrary, while adjustments may be made, practices might not be changed significantly. (4) The transmission and effects of noise do not appear to be a problem in the schools investigated. The relatively low noise reduction qualities of the "open-plan" schools would indicate that noise might have been a problem. This, however, appears to be without substantiation. (5) The evidence tends to indicate that little use was made of corridor space for activities other than pupil passage, irrespective of classroom design. (T. E. J.)

374 Largent, Francis D.
COMPARATIVE COSTS AND UTILIZATION OF PERMANENT AND
TRANSPORTABLE CLASSROOMS
Stanford University
Stanford, California. November, 1962, 151 pp.

The results of this study indicated that the initial construction cost of portable classrooms was $7.84 per square foot as compared to $13.22 per square foot for permanent classrooms. When the costs of converting portable classrooms into permanent structures were considered with initial construction cost, a range of $11.22 to $22.02 per square foot per portable classroom was found. The investigation of the costs of moving portable classrooms revealed that the mean total cost of moving each classroom was $1,047.50 when six classrooms were moved at a time. When one classroom was moved the mean costs per classroom was $2,908.11. Costs of converting portable classrooms into permanent structures varied greatly with the particular conversion job since many factors affected these costs. The range of adjusted square foot costs per room was from $.38 to $14.18. Of the total number of classrooms in districts in California over 10,000 ADA, 16.83 percent were portable classrooms. Portable classrooms were utilized by 82.9 percent of the total number of districts of this size. Population mobility was ranked first the largest number of times by school officials as the most important factor considered when contemplating the use of portable classrooms. The study indicated that portable classrooms can provide a current means to economy, and at the same time meet educational housing needs with a well-planned long-term program. (T. E. J.)

373 Leavitt, Urban J. D.
ELEMENTARY SCHOOL SIZE RELATIONSHIPS
University of Texas
Austin, Texas. June, 1960, 353 pp.

The tentative criteria developed from standards and criteria approved by the jury in this study included criteria for the provision of administrative facilities, instructional and service facilities, space provision and size; criteria for provision of personnel; and criteria for this utilization of facilities, space, and personnel. The optimum elementary school size interval was defined as that size of elementary school enrollment which is most consistently associated with the best provision and utilization of facilities, space, and personnel. Within the limited sample of 17 elementary schools of different sizes there were certain school size intervals which, in terms of the criteria developed, could be identified as providing more of the essential facilities, space, and personnel and utilizing them more efficiently than other school size intervals. The results of this study indicated that optimum size elementary school intervals may lie within a range of 200 to 699 pupils. Schools within this range made provision of facilities, space, and personnel markedly superior to those of other schools among the 17 elementary schools surveyed. A smaller range of 200 to 399 pupils appeared to be associated with the best utilization of personnel. (T. E. J.)

372 Martin, Francis B.
MULTIPURPOSE UNITS IN ELEMENTARY SCHOOLS, APPROPRIATE ACTIVITIES AND REQUIRED FACILITIES
University of Southern California
Los Angeles, California, December, 1960, 271 pp.

Important conclusions and findings of this study included: (1) Activities which are an important part of the educational program, which are inappropriate to the classroom, whose facilities can be efficiently shared, which are common to school and community, and for which separate facilities cannot be financed, may be housed in a multipurpose unit. (2) General agreement existed between groups regarding desirability--undesirability of housing listed activities, and of providing listed facilities. Exception: central kitchen cooking, opposed by users, favored by the jury; difference significant at the 1 percent level of confidence. Responses indicated that facilities were considered adequate as provided. (3) A multipurpose unit is a desirable and integral part of most schools. Its adequacy depends upon the development locally of criteria for the selecting of activities to be housed, upon selection of these activities, and upon the cooperative development of the educational specifications and performance standards as a basis for architectural specifications. (4) Assembly, food service, display, special instructional activities, social-recreation activities, and community activities were approved for the multipurpose unit. (5) An auditorium-cafeteria capable of serving one-half the maximum enrollment, audio-visual facilities, permanent stage, activity room, kitchenette, teacher dining room with kitchenette, and adequate game space (basketball only under special conditions) were approved as a part of the multipurpose unit. (T. E. J.)

378 Mincy, Homer Franklin, Jr.
A STUDY OF FACTORS INVOLVED IN ESTABLISHING A SATISFACTORY THERMAL ENVIRONMENT IN THE CLASSROOM
University of Tennessee
Knoxville, Tennessee. March, 1962, 405 pp.

In this study thermal conditions in 27 classrooms located in 9 different schools were examined. Major findings of the study included: (1) 44 percent of all classrooms' working area air temperature readings were above 75 degrees F., the upper limit of the criterion range, while only 2.1 percent of the readings were below 70 degrees F., the lower limit of the criterion range. The highest reading within the total confines of a classroom was 100 degrees F. Only 6 of 27 classrooms met completely the criterion pertaining to air temperature. Five of the six were classrooms using unit ventilators for heating and ventilating. (2) More classrooms failed to meet the mean radiant temperature criterion than any other criterion, due to the fact that the mean radiant temperature often rose above the air temperature and outside the optimum temperature range. Most of the high mean radiant temperatures were produced by sunshine on window glass. (3) The mean classroom relative humidity was with the criterion range on 15 of the 27 days of the investigation. The mean relative humidity fell below the minimum criterion limit of 40 percent in 11 classrooms, while only 1 classroom registered a relative humidity above the upper criterion limit of 60 percent. (4) The need for more adequate ventilation was found with 14 of the 27 classrooms overheated and 5 rooms containing objectionable odors. No perceptible odors were found in any of the classrooms employing unit ventilators. (5) Air movement within the selected classrooms ranged from no perceptible movement to 100 feet per minute; mean vertical temperature differentials from the floor to the ceiling ranged from 0.85 degrees to 12.53 degrees F., while mean horizontal temperature differentials at 30-inch level of the classroom ranged from 0.45 degrees to 2.67 degrees F. (T. E. J.)

116 Mushkin, Selma J. and McLoone, Eugene P.
LOCAL SCHOOL EXPENDITURES, 1970 Projections
Council of State Governments
1313 East 60th Street
Chicago, Illinois 60637. November, 1965, 96 pp.

The number of school-age children is not increasing as fast as in the past. The children who will be in schools in 1970 are already born so it is possible to project school conditions in 1970 with a high degree of certainty. One major uncertainty centers in the migration of children from one state to another. There is no intention in this publication to make future forecasts. The 1970 figures are estimates based on several stated assumptions. In 1970 states and local governments will spend $31 billion on public schools insted of $20.4 billion as in 1964. The quality of schooling will be improved; there will be remedial and after-school tutorial services; there will be expanded educational opportunities in the summer months. No attempt is made as to what new federal grants for education, and programs established under the Office of Economic Opportunity's attack on poverty will have on the schools of 1970. The Projection is focused primarily on what the states and localities will spend in 1970 on public schools under the assumed conditions existing at that time. Included in the Projection are interesting data on extending school services, extending the schooling period, lenthening the school year and the school day, and other extensions possible under new federal legislation. School board members and other officials should be interested in the 1970 assumptions on the number of classrooms needed, changes in programming, cost of school construction, and how funds will be raised for schools. Many state-by-state tables are included. (A. B. G.)

24 Naylor, T. H. Jr., and Cain, G. J.
MISSISSIPPI'S 300 MILLION DOLLAR SCHOOL CONSTRUCTION PROGRAM
State Educational Finance Commission of Mississippi
Jackson, Mississippi. November, 1965, 23 pp.

A complete story of the program of assistance to local school districts in the field of school plant construction, from the beginning of the program in 1946 to the present. The determination of needs by surveys and commissions is explained. The operation of the Public School Building Fund is explained under headings of Purpose, Requirements, Long Range Plans, and Procedures. The accomplishments of the program are listed in terms of facilities completed. A table of amounts allocated to school districts is given, also a table of amounts allocated per year. A graph depicts total expenditures in this field and shows the extent in millions of dollars of state participation from fiscal years 1953-1954 to and including 1964-1965. A summary describes site requirements, the facilities included, the reduction in numbers of school districts from over 2,000 to 150, the growth in school attendance, the cost per square foot, etc. (W. F. C.)

49 Nimnicht, Glendon P. and Partridge, Arthur
DESIGNS FOR SMALL HIGH SCHOOLS
Educational Planning Service
Colorado State College
Greeley, Colorado. 1962, 83 pp.

An attempt to answer the question "How can facilities be designed so that small high schools can house efficient and comprehensive educational programs?" Material is the result of a study of small high schools, and significant solutions to problems inherent in the small school. Designs of facilities for multiple class teaching are discussed and illustrated by sketches and actual photographs, as are facilities for team teaching, special subject areas, and general use areas. The report presents illustrations of how some of the nation's outstanding small high schools have used these approaches effectively and analyzes in some detail the implications of each of these approaches for the kind of physical facilities and equipment which are desirable. An appendix explains how the study was conducted. (W. F. C.)

135 Pena, William
CAMPUS PLANNING STUDY FOR THE OHIO STATE UNIVERSITY
Alternate Basic Schemes
Caudill, Rowlett and Scott
3636 Richmond Avenue
Houston, Texas. August, 1959, 142 pp.

As indicated in its foreword, this preliminary report is intended to identify the planning problems of The Ohio State University and to point out possible solutions in order that basic policies which relate to the development of the campus might be established. The study involves an examination of future enrollment and space needs, of various types of program organization, of traffic and urban development problems involving the university and adjoining areas, and an analysis of the present campus in respect to existing buildings, physical barriers, and aesthetic considerations. On this background seven schemes are derived from two basic concepts of campus planning: centralization and decentralization. These seven schemes are then evaluated in terms of advantages and disadvantages. It is pointed out in conclusion that a decision in respect to these schemes cannot be made until the University formulates firm statements of policy in several areas. Generous use is made of diagrams and sketch plans to illustrate situations and proposals. (C. A.)

66 Proceedings of the Washington State School Building Conference
EFFECTIVE HIGH SCHOOL BUILDINGS FOR EFFECTIVE HIGH SCHOOL EDUCATION
State Superintendent of Public Instruction
Olympia, Washington. December, 1951, 32 pp.

The proceedings of the Washington State School Building Conference which had as its theme "Economy in Construction of High School Buildings." This conference was held on December 12-14, 1951 and was sponsored by Pearl A. Wanamaker, State Superintendent of Public Instruction. The discussions were centered about two main principles:

1. Helping people get together to study what education means in a democracy as a basis for planning school buildings.
2. Planning classrooms in the light of learning activities that should take place in today's schools.

Reports by nationally recognized authorities included "The Developing Secondary School Program," "Developing Designs for Secondary School Buildings," "Critical Construction Materials," and "Translating Educational Specifications into a Creatively Designed School Building." Summaries of panel discusssions are included for such topics as "What Learning Experiences Help Young People Become Effective Citizens?" "Cooperative Educational Planning," and "How Do We Get Economy In Construction?" (E. J. M.)

120 Reida, G. W.
A MANUAL FOR EVALUATING SCHOOL FACILITIES
Kansas State Department of Public Instruction
Topeka, Kansas. 1962, 73 pp.

A booklet designed to provide a structure that can be used in the evaluation or rating of a school building. It includes a checklist and a mathematical system for quantifying the ratings and is designed to be used by lay persons as well as informed professionals. The rating scales which are in the form of questions to be answered, cover both elementary and secondary building educational specifications. In addition, consideration is given to heating, ventilating, lighting, fire protection, and sanitary facilities. The pamphlet is in experimental form to be revised and reprinted. (R. L. F.)

165 Saetveit, Joseph G. and Hick, Basil L.
PLANNING THE MUSIC SUITE
New York State Education Department
Division of School Buildings and Grounds
Albany, New York. 1963, 24 pp.

This is one of a series of pamphlets designed and published by the State Education Department and the University of the State of New York. Each pamphlet relates to some specific area of a school plant and its purpose is to aid school officials and architects in their planning of these areas. Planning the Music Suite is designed to help school officials, architects, and others in arranging music facilities for new buildings and improving facilities in existing buildings. No dimensional layouts are presented but emphasis is placed on the location of the music suite, its construction, and the sound and acoustics factors. Types and sizes of music areas are discussed along with the importance of lighting and room relationship. A listening room is a new innovation and should be located near the record library or the student lounge. A short treatise is given to the heating, ventilating, and humidity control of music rooms. (A. B. G.)

382 St. Cyr Architects and Associates, Inc.
THE EVOLUTIONARY ROUND SCHOOL, Douglas MacArthur Elementary School, Southfield, Michigan
H. F. Campbell Company
Detroit, Michigan. 2 pp.

Describes the economies in space and money obtainable through the construction of a round school building with a unique heating and ventilating system. The builder shows that when compared to a compact two story award winning building, the round school has:

72% less wall area
62% less wall length
70% less corridor area (and even the corridor can become part of any adjacent teaching station)
40% less mechanical equipment area
5% less building area (but with two more classrooms and larger teaching stations)
15% larger multi-purpose room (and with controlled access for community use at night)
44% larger instruction materials center (becomes amphitheatre at will)
62% larger audio-visual room (that is a vital "nerve center" of the school)
10% larger office area (centrally located to all classrooms)
30% lower house-cleaning costs
50% lower fuel costs
40% lower insurance costs
200% better ventilating system (Plus cooling too!)

(R. L. F.)

35 Sanborn, George E. and others
SCHOOL BUILDING PROJECT PROCEDURES, A Guide for the School Building Committee, Economy Series, No. 1
State Department of Education
Hartford, Connecticut. June, 1960, 44 pp.

In 1959 the Connecticut General Assembly passed legislation requiring "that the State Department of Education establish a School Construction Service to assist communities in achieving increased economy in their school building projects. It further requires that "each project be reviewed by the Service for economy in order to qualify for state construction grant." This first booklet recommends procedures designed to eliminate "wasted effort, lost time, and the resultant, hidden but considerable cost." It is a must in procedures which communities should follow if they wish to obtain financial assistance under the Connecticut school building aid law. Chapters on School Building Committee, Allocation of Responsibilities, Educational Specifications Reconsidered, Selecting an Architect, Time for Planning, Budgeting and Cost Control, Contract Documents, Bidding and Contracting, and Construction Period are short, concise, and useful to any groups and officials planning school facilities. The other four chapters are apropos only to Connecticut and other state grants, laws, and regulations. (A. B. G.)

446 SCHOOL SITES, SELECTION AND ACQUISITION
Economy Series, No. 3
State Department of Education
Hartford, Connecticut. June, 1960, 12 pp.

This bulletin concerns the selection, acquisition, and development of sites for school purposes. Ideally, site acquisition is planned for several years advance of need. The site serves several educational uses, the location of a school building, physical education, outdoor instruction and recreation for all ages, space for supplementary services such as bus loading, parking, and landscaping, and unforeseen future needs. The concept of the "School-Park" is suggested. Standards for location and selection are suggested which include a complete table of area requirements for games and recreation activities. Many different sources should be explored including, forecasts, community master plans, sale surveys, aerial photographs, highway plans, the architect, and state educational and health standards. (D. O. B.)

69 Seavers, Gilmore B. and others
ECONOMY IN SCHOOL CONSTRUCTION
Pennsylvania School Study Council
University Park, Pennsylvania. 1957, 14 pp.

The authors of this report have examined the available publications dealing with school construction from the point of view of economy, using the term "economy" to relate not only to low costs of construction but to good value for money spent in terms of the educational environment obtained and ease of maintenance. Under the heading "Design and Structure" the report lists, with comments, the 15 methods of cutting school construction costs contained in a 1952 pamphlet, Cutting Costs in

Schoolhouse Construction by the American Association of School Administrators, and adds to the list additional methods. Under the heading, "Construction Materials," the report emphasizes the need for a research attitude toward the selection of materials and the proper combination of materials to produce an economical structure. Under the same heading quite specific recommendations are made for the selection of materials for (a) classroom flooring, (b) a typical classroom and (c) a typical corridor. While the report tends under the latter heading to be quite specific in its recommendations, the conclusion to the report admits that "there may be no final and conclusive answer to the problem of economy in school construction," and suggest that new inventions and discoveries will provide new materials that will permit improvements in design. Continued study and experimentation are required if more economical buildings and facilities are to be obtained. (C. A.)

370 Smith R. N. and others (Editors)
SCHOOL BUSINESS, A Manual on School Business for School Officials
Department of Public Instruction
Des Moines, Iowa. 1965, 84 pp.

A manual designed for Iowa school officials to help them expedite their labors in planning and managing schools. It cites statutes, regulations, practices, attorney general's opinions and reports, and court decisions relative to school business in Iowa. Although the purpose and value of this publication is peculiar to Iowa, school officials in other states might use it in constructing a similar manual of their own. Chapter IX on School Buildings and School Sites and Chapter X on School Insurance should be especially informative to those interested in obtaining school sites, constructing school facilities, and school insurance programs. Included is a 1963 copy of the Standard Form of Agreement Between Owner and Architect recommended by the American Institute of Architects and used by many school boards. (A. B. G.)

383 Stanford University, Fifteenth Annual School Planning Institute
PLANNING FOR ELEMENTARY SCHOOLS
School Planning Laboratory
Stanford University
Stanford, California. 1965, 18pp.

Resumes of major speeches given at the Annual School Planning Institute. It includes presentations by Dr. Harold Gores of the Educational Facilities Laboratory; Dr. Fannie Shaftel of Stanford University; Dr. G. Wesley Sowards of Stanford University; Dr. Paul Avery, Superintendent, Winnetka, Illinois; Mr. A. Maurice Capson, Granite School District, Utah; Leland B. Newcomer, Clark County Nevada; Charles D. Gibson, California Bureau of School Planning, Sacramento; Roy H. Seifert, Landscape Architect, San Diego; John Shaver, Architect, Salina, Kansas; Ezra Ehrenkrantz, SCSD Project Architect, Stanford University; Clair Eatough, Senior Architect, California Bureau of School Planning, Sacramento. Each speaker relates the responsibilities of his field to elementary school planning. The content included discussions on team teaching, individualized instruction, independent learning, flexibility, changing pattern of population prediction, reorganization of school districts, a new educational dimension, and team approach to school planning, all in relation to school facilities problems. (R. L. F.)

20 Strevell, W. H. and Mahoney, Leo G.
SCHOOL POPULATION STUDY, Clear Creek Independent School District
Gulf School Research Development Association
3801 Cullen Boulevard
Houston 4, Texas. 1961, 44 pp.

Utilizing recognized criteria and statistical evidence, the authors indicate how they would spell out the needs for a school district when population trends, housing, and commercial forces are all involved in a particular school district. Of significance is a series of pertinent points used in establishing population tables and these are valuable to anyone interested in population studies. Yield per home and scholastics per school in a definite area are related. A survival or "retention-ratio" technique of statistical projection is applied to take into account external and internal factors. With these techniques of school population analysis a district may anticipate realistically both the future school population and the future needs of its community. (T. S. G.)

85 The Five-Year Building and Future Sites Commission
A SCHOOL BUILDING AND FUTURE SITES PROGRAM 1961-1965
Board of School Directors
Milwaukee, Wisconsin. May, 1960, 95 pp.

Report of a 66 million dollar, five-year school building program for Milwaukee, Wisconsin. Supporting data such as enrollments, births, school census data and annexations to the city are presented to show the need for additional school buildings. Estimated costs and revenue requirements for the building program are included. Data is presented through the use of tables, charts, and graphs. A list of previous construction projects completed for the years 1950-1960 is also included. Special emphasis is given to educational policies and the school building program, factors affecting school building needs, and the need for a modernization program for older school buildings. (E. J. M.)

445 The Five-Year Building and Future Sites Commission
A SCHOOL BUILDING AND FUTURE SITES PROGRAM 1966-1970
Board of School Directors
Milwaukee, Wisconsin. January, 1965, 112 pp.

A list of the school building needs of a large city school system for the years 1966-1970 along with supporting population and enrollment data. The cost of the proposed program is $45,745,000. Special attention is given to educational policies and how they affect the school building program. Attention is given to the "continued conversion of the Milwaukee Public Schools to the 6-3-3 Plan." A report on the program of elementary school modernization carried on by the Milwaukee Public Schools is included along with a proposal for extending the program to the secondary school plant. The report also deals with school building needs in an undeveloped 16-square-mile area recently annexed to the city. (E. J. M.)

203 Wells, Weldon S.
A STUDY OF PERSONALITY TRAITS, SITUATIONAL FACTORS, AND LEADERSHIP ACTIONS OF SELECTED SCHOOL MAINTENANCE SUPERVISORS
North Texas State University
School of Education
Denton, Texas. January, 1964, 111 pp.

The purpose of this study was to determine leadership behavior factors in school maintenance supervisors which could be used to predict leadership behavior of men being considered for maintenance supervisors. Fifty-four maintenance supervisors in a large metropolitan area of the southwestern United States participated in the study. The data were gathered from several well-known scales and measures of various aspects of leadership behavior. Other data were collected from the Leadership Behavior Description Questionnaire and an administrative rating scale developed by the researcher after consulting with a jury of experts in school maintenance. Coefficients of correlation were calculated to determine the degree of relationship between the different variables. High positve correlations were found to exist between many aspects of personality relating to efficient supervisors. The implications are that use of several well-known measures of various aspects of personality and leadership can be used to predict which persons from a group of maintenance workers applying for the job of maintenance supervisor have better chances than others of becoming effective maintenance supervisors. (C. S. B.)

* *

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This is the second of a series of abstracts produced by the NCSC Abstract Service as a supplement to the NCSC technical publication. The NCSC Abstract Service is an information storage and retrieval system of school plant research and planning information of national relevance. The documents listed in the report are unpublished or of relatively low circulation. They are abstracted for dissemination to membership of the Council and for a continuing up-to-date deposit in the U. S. Office of Education.

73 Acuff, William Turner
A STUDY OF THE VISUAL ENVIRONMENT IN SELECTED CLASSROOMS
University of Tennessee
Knoxville, Tennessee. March, 1963, 243 pp.

Analyses of the data provided the following major findings: (1) Readings of the illumination levels obtained in the thirty classrooms ranged from 359 foot-candles to 9 foot-candles. Three of the thirty classrooms (10 percent) had illumination levels meeting the specified illumination criteria established for the area. Eleven classrooms (37 percent) had average levels of illumination meeting the foot-candle requirements. All eleven classrooms utilized fluorescent lighting. (2) Three of the thirty classrooms (10 percent) met all phases of the criteria relating to surface brightness ratios. Twenty-one of the classrooms (70 percent) had window brightness exceeding the brightness ratio established for the classroom and twenty classrooms (67 percent) had unacceptable floor brightness. (3) Fifteen classrooms (50 percent) fully met the criteria relating to luminaire brightness. (4) Two of the thirty classrooms (7 percent) had surface reflectances completely meeting the criteria. Eight surfaces in each of the thirty classrooms were measured for reflectance. Satisfactory ceiling reflectance was found in four classrooms (13 percent); chalkboard surfaces showed satisfactory reflectance in nineteen classrooms (73 percent); desk top surfaces in sixteen out of twenty-nine classrooms (55 percent) had satisfactory reflectance; floor reflectance surfaces in twenty-seven classrooms (90 percent) measured satisfactory reflectance; furniture surfaces in fifteen classrooms (50 percent) possessed satisfactory reflectance; tackboard surfaces in ten classrooms (36 percent) had satisfactory reflectance; the trim surfaces in fourteen classrooms (48 percent) showed satisfactory reflectance, and wall surfaces in twenty-two classrooms (73 percent) had satisfactory reflectance. (T. E. J.)

6 Arnold, Harold Ramble
A STUDY OF PROCEDURES AND PRACTICES EMPLOYED IN THE DEVELOPMENT OF BID SPECIFICATIONS FOR SUPPLIES AND EQUIPMENT IN SELECTED SCHOOL DISTRICTS
University of Pittsburgh
Pittsburgh, Pennsylvania. June, 1963, 420 pp.

Consideration was first given to the establishment of quality controls, including procedures and practices involved in the use of, revision of, and participation in the formation of supply lists; examination and resolution of requests for items not on supply lists; the determination of standards; means employed for users to become acquainted with items of supply and equipment; and the extent of testing. Consideration was then given to factors involved in the establishment of quantity controls. A third consideration involved a study of the procedures and practices related to the issuance of the bid specification document. Major conclusions of the study were: (1) recognized authorities are not in agreement concerning what constitutes effective procedures and practices; (2) effective procedures and practices, in general, characterize about half of the districts; (3) districts which most closely follow effective procedures and practices are the larger districts, districts whose administrative organizations are most complex districts whose storage facilities are considered adequate, and districts whose purchasing procedures and practices are based on written policy; (4) the most effective procedures and practices are found in all types of districts as are also the least effective procedures and practices; and (5) although there is marked variation in the type, extent, and effectiveness of the participation of persons concerned with the educative process in the selection of products and the preparation of bid specifications for products, most districts make provisions for some degree of participation. (T. E. J.)

176 Babcock, Ruth E. and others
PLANNING THE SCHOOL LIBRARY
University of State of New York
Albany, New York. 1962, 10 pp.

An aid to the improvement of plans for new buildings and of existing school libraries. Includes sections on (1) location; (2) general considerations; (3) space provisions; (4) reading room; (5) library classroom; (6) conference room; (7) librarian's office; and (8) stack and storage space. A summary table of important factors is included. (T. S. G.)

754 Bartlett, Perry
NEW PRODUCTS IN THE CUSTODIAL FIELD
Proceedings Forty-fourth Annual Convention
Association of School Business Officials of the United States and Canada
2424 Lawrence Avenue
Chicago, Illinois. 1958, 11 pp.

Reports on trends in two areas of custodial products: pesticides and floor products. Insecticides are included in two broad groups; the space and residual sprays. Each group's characteristics and recommended uses are presented. Recommendations for treatment and maintenance of floors were given in the following areas: (1) preparation of specifications of floor sealers; (2)

characteristics of floor waxes; and (3) the latest trends in emulsion waxes. Included were recommendations concerning the use of new products for maintenance of vinyl, asphalt, and rubber tiles. (H. H. C.)

7 Bergstrom, Carl Theodore
AN ANALYSIS OF THE IMPACT OF PROGRAM CHANGE ON SCHOOL PLANTS
Michigan State University
East Lansing, Michigan. June, 1962, 177 pp.

Major conclusions of the study included:

1. Where major program modifications occur, the educational adequacy of existing school plants decreases significantly.
2. Where major program modifications occur, the educational adequacy of old school plants tends to be reduced significantly more than new school plants.
3. Where major program modifications occur, the education adequacy of middle-aged school plants tends to be reduced slightly more but not significantly more than new school plants.
4. Certain items may be singled out as contributing most to the reduction in educational adequacy as a result of program modification, namely, and in this order:
    a. Classroom shortage.
    b. School layouts hamper easy movements from place to place.
    c. Academic classrooms tend to be too small.
    d. Gymnasiums, cafeterias, and similar general service facilities tend to be too small in the event of expansions.
    e. Toilet facilities become inadequate.
    f. Walls between adjacent rooms are too often load-bearing and not easily moved.
    g. Some rooms are not as cheerful and attractive as they should be.
    h. Playgrounds, outdoor areas, and recreational areas are not, in all school plants, readily accessible to pupils who use them.
    i. General service provisions are not always readily accessible.
    j. Some sites are not attractively planned and landscaped.

(T. E. J.)

8 Braun, Frank R.
A STUDY OF THE RELATIONSHIP IN PLANNING FOR SCHOOL BUILDINGS BETWEEN THE CITY PLANNING AGENCIES AND SCHOOL AUTHORITIES IN AMERICAN CITIES OVER 100,000 POPULATION
University of Minnesota
Minneapolis, Minnesota. January, 1961, 275 pp.

Legal conditions requiring the cooperation of school districts and city planning agencies were reported from 28 percent of the 110 cities included in the study. Various types and degrees of participation by the city planning agencies and school authorities in the planning for school facilities were reported in the questionnaire survey. Among these, the most frequently mentioned was that of exchanging information relative to the operations of the planning agency and the schools. In 59 cities or 54 percent of those under study this type of relationship was reported. Relationships involving an exchange of information plus a more direct involvement by the city planning agency and the school authorities in the planning for school facilities were reported in 41 cities or 37 percent of those under study. The planning agencies and the school authorities in 21 cities proceeded independently of each other in their operations involving planning. In three cities the activities of the city planning agency were reported to be so limited that no effective participation could be expected of the city planning agency in the planning for school facilities. Using the evidence available from the questionnaire survey, a summary classification of the cities under study was made. More than half of the cities under study, 54 percent, were classified as reporting some cooperative relationships in the area of school facility planning. Thirty-four percent of the cities reported routine procedural relationships. And, in eleven percent of the cities, no relationships whatsoever were reported. (T. E. J.)

451 Bulletin of the California State Department of Education
A GUIDE FOR THE DEVELOPMENT OF LANGUAGE Laboratory Facilities
Bureau of Audio Visual and School Library
Education and Bureau of National Defense
Education Act Administration
California State Printing Office
Sacramento, California. October, 1960, 37 pp.

An effort to (1) outline steps which should be taken by schools to meet their needs in planning for the listening-speaking approach to the language program and (2) make clear the provisions needed to permit introduction of new equipment and required adjustments in the program. Section I answers ten questions about language laboratories, ranging from definitions, to advantages and uses, and on to necessary equipment and costs for installations. Section II lists specific factors to be considered in the three levels of language laboratory; listening; listening and speaking; and listening, speaking, and recording. Section III presents five guidelines for establishing language laboratory facilities: (1) Thorough planning is essential; (2) Certain operational decisions must be made early in the planning state ----; (3) Standards should be used in selecting equipment ----; (4) Provisions should be made for preparation of pre-recorded tape-lession materials ---; (5) Full value from the facility must not be expected the first year. Section IV details the materials and equipment needed in the three levels of laboratory, giving description and approximate costs. Section V presents references for further study on the topic. (G. R. R.)

751 Byrnes, Frederick J.
FEES OF LOCAL LEGAL COUNSELS FOR SERVICES RELATED TO SCHOOL BOND PROCEEDINGS IN NEW YORK METROPOLITAN AREA
Proceedings Forty-fourth Annual Convention
Association of School Business Officials of the United States and Canada
2424 West Lawrence Avenue
Chicago, Illinois. 1958, 2 pp.

Major findings were: (1) Bond proceedings are technical matters. (2) Although state statutory requirements differ, most bond proceedings are similar in nature. (3) The majority of school districts employ local legal counsel in school bond issues. (4) There is no consistent methods for determining fee of legal counsel. (5) Studies show trend away from set fees to a "sliding scale" for legal counsel. (6) Services for legal counsels vary considerably. Conclusions concerned the legal nature of bond proceedings, practices for retaining legal counsel, selection of legal counsel, and basis for determining cousel fees. (H. H. C.)

340 Caudill, Rowlett and Scott
THE DEVELOPMENT OF THE TEACHING SPACE DIVIDER Research Report No. 1
American School and University Vol. 26, pp. 433-488.

A report on Teaching Space Dividers, one solution to the problem of putting to work for classroom use the walls that subdivide a school into classrooms. A wall can be used as a teaching device because it is a vertical work surface just as a table is a horizontal work surface. The functions of the partition are to serve as units to divide space, to serve as vertical work surfaces, and to facilitate easy interior changes. Chalkboard, dowel, tackboard, and perforated panels are the four types of Teaching Space Dividers which are described and illustrated. These units have the following common features: (1) are prefabricated and demountable four feet wide modules; (2) extend from floor to near-ceiling height; (3) are educational devices usable by both teacher and pupils; (4) can be applied directly on the studs, eliminating moulding and usual finished wall behind; (6) can be interchanged with others, by teacher or janitor, quickly and easily with a screwdriver. In bids at Laredo, Texas, involving three schools and 44 classrooms, Dividers cost only 4 percent additional to the total construction cost compared with conventional walls. The Teaching Space Divider is still in the developmental stage but its economy and educational versatility give it a distinct advantage over the wasteful, inflexible, and inadequate vertical surfaces of heavy masonry partitions. (M. W. B.)

368 Caudill, William W.
SHELLS AND THE EDUCATING PROCESS, Investigation No. 8
Caudill, Rowlett and Scott, Architects
3636 Richmond Avenue
Houston, Texas. July, 1963, 26 pp.

A publication based on a speech, SHELLS AND THE EDUCATING PROCESS, delivered by William W. Caudill on October 1, 1962 at the World Conference on Shell Structure held in San Francisco. The publication includes photographs, map-pin arrangements and domino illustrations. He states: "I doubt that there will be many more shelled classrooms in the future because there will be no classrooms in the future ---- entirely new methods of teaching have evolved and will require new spaces." A project, sponsored by New York City, to plan the schoolhouse of the future is described. It is based on the concept of large column-free space for groups of 150 children, kindergarten through second grade with a team of four to six teachers, instead of the small box-like spaces to house 25 to 30 pupils and one teacher. Mr. Caudill concludes: "I can see more shell structures in schoolhouses. The shell seems to be a generic solution to team teaching and the individualized curriculum." (M. W. B.)

341 Caudill, William W. and Bellomy, Cleon C.
SPATIAL APPROACH TO PLANNING THE PHYSICAL ENVIRONMENT
Research Report No. 2
American School and University. 1954-55

An explanation, in simple graphic terms, of what is meant by the spatial approach to planning the physical environment. Technological progress makes possible the spatial approach which when simply defined states "start with all nature, keep everything desirable--spaciousness, view, natural light, comforting breezes--and eliminate only the undesirable." There are two important architectural elements used by planners following the spatial approach: (1) the horizontal screen or umbrella that serves primarily to keep the sun and rain off, may be required to help let in light, to keep out sun heat or to retain room heat, or to frame desirable view; can be made to take virtually any shape and position; (2) the vertical screen that acts as a wind break, a sound source, thermal screen, and a view screen. Sketches of the four basic screen types, both horizontal and vertical, with which the architectural composer works are presented: the transparent screen, translucent screen, solid or opaque screen, and the pierced screen with the qualities of opaqueness, translucency, and airflow. "The spatial approach will give the architect and the builder the needed freedom to balance the construction budget....and will also give to the educator a real chance to offer his pupils comfortable, highly functional spaces for learning." (M. W. B.)

348 Caudill, William W. and Bullock, Thomas A.
BARRIERS AND BREAKTHROUGHS - Research Report 9
American School and University. 1956-57.

An evaluation of school architecture as we see it today focusing on the twin problems: what has been done to give our children better school buildings? What is yet to be done? Some of the greatest barriers to obtaining better schools are described in short paragraphs: (1) architectural prejudice; (2) educational prejudice; (3) obsolete codes; (4) sound technology; (5) structural techniques; (6) building complexity; (7) small building units; (8) inadequate building units; (9) static thinking; (10) unit cost bugaboo. There are a great number of breakthroughs to offset the barriers described in brief paragraphs: (1) group dynamics of planning; (2) educational research approach; (3) plan types; (4) learning walls; (5) outdoor learning; (6) teaching space dividers; (7) student centers; (8) low ceilings; (9) renaissance of top lighting; (10) landscaping; (11) movable equipment; (12) humanistic architecture. (M. W. B.)

4 Chaffee, Leonard
THE INFLUENCE OF THE LOCATION OF THE SUPERINTENDENT'S OFFICE
ON THE EDUCATIONAL ADMINISTRATION COMPLEX
Ohio State University
Columbus, Ohio. April, 1962, 191 pp.

In this study a weighted index was used in ascertaining the relationships that existed among teachers, principals, superintendents and the "ideal" as posed by members of a jury composed of professors of educational administration. Analysis of the data showed the responses of personnel in school districts in which superintendent's offices are located in administration buildings to be consistently more closely allied to the "ideal" as determined by the jury of experts. In those school districts in which superintendents' offices are located in instructional school buildings, it was evident that principals are not fulfilling all facets of their leadership roles to the degree attained by principals in school districts which house the offices of chief administrators in administration buildings. In the sample employed for this study, the location of the superintendent's office in a school building used for instructional purposes negatively influenced the relationships that exist within the educational administration complex of the school district. The recommendation was made that offices of chief school administrators not be provided for in school buildings utilized for instructional purposes. Further recommendations were made related to an evaluation of the various administrative offices in the light of the type of services desired; a clarification of the role of principals as administrative leaders; and a study of superintendent's operations. (T. E. J.)

137 Chapman, Dave
PLANNING FOR SCHOOLS WITH TELEVISION DESIGN FOR EDUCATIONAL TV
Education Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. April, 1960, 96 pp.

This study begins with an analysis of the elements that affect the educational program: the continuing increase in the number of students to be educated; the increasing quantity of information and processes to be learned; the prospect of continued shortage of teachers and the need to make the best use of teacher skills; the changing size of the administrative unit. It continues with a study of trends in teacher-student space relationships, teaching techniques in relation to group sizes, teaching spaces for various group sizes and flexibility of design of teaching spaces. While a substantial portion of the balance of the study deals specifically with the planning of schools for the effective use of television and provides a practical guide to the technical aspects of television, the facilities described, other than the actual television apparatus, are basically those required for a good school using modern teachniques and equipment. The report contains a large number of excellent diagrams showing space arrangements variable as to size and use for large and small groups. (C. A.)

443 Chase, William W.
SCHOOL SITE SELECTION AND UTILIZATION
The American Institute of Architects
1735 New York Avenue, N. W.
Washington, D. C. 20006. March, 1965, 5 pp.

The site is being increasingly recognized as just as much a part of the total school plant as the building and equipment. Effective utilization of the site is equally important. This depends on (1) a well-defined statement of educational needs; (2) selection and acquisition of a site to accommodate those needs; and (3) development of the site to facilitate efficient and effective operation of the program. Criteria for site selection include (1) health and safety, which relate to pleasing and desirable neighborhood, free from excessive noises, smoke, dust, odors and traffic. (2) suitability or ability to accommodate isolated areas for preschool, free play, or low organization games; areas for handicrafts and quiet activities; areas for field games for both boys and girls; areas for adults; areas for playground apparatus; multiple-use paved areas for court games, etc.; science and nature study areas; gardening space; and landscaped areas for site beautification. Site location should relate to distance pupils walk to school; for elementary this is three-fourths of a mile, for junior high one and one-half mile, and for senior high, two miles. The size of site depends on organization, educational activities, building design, anticipated enrollment, community activities, driveways, and future expansion. A table of site size ranges from 3.43 acres for an elementary school of 120 to 12.11 acres for 810 pupils. Cooperation between and among the various school and community groups, and the processes of educational planning and architectural design are just as important in site planning as in building planning. (J. H. H.)

345 Cherry, Ralph W.
IMPLICATIONS OF CHILD GROWTH AND DEVELOPMENT FOR SCHOOLS
PLANT DESIGN - Research Report 6
American School and University. Vol. 27, 1955-56.

Extensive and exacting research in child growth and development has revealed many facts and principles which have important implications for the school plant. This report attempts to indicate the various types of information which can and should be obtained and to suggest some good sources for further study. Four of these important principles presented with a few comments concerning their implications, are: (1) development is a product of two factors--learning and growth; (2) human growth and development follow an orderly pattern; (3) individuals differ in rate, pattern, and ultimate level of development; (4) all aspects of growth and development are interrelated. Specific characteristics and needs of children of various ages are given for the primary school child, the pre-adolescent, the adolescent, the adolescent, and for all children. The child is the only yardstick by which a building can be properly measured and evaluated. (M. W. B.)

14 Clinchy, Evans and Beynon, John
PROFILES OF SIGNIFICANT SCHOOLS Two Middle Schools,
Saginaw Township, Michigan
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. September, 1960, 26 pp.

Two middle schools, accommodating 650 students in grades 5-8, are designed to improve the transition of elementary pupils to a modern high school program featuring individualized, self-directed study and research. Located on 18-and 24-acre plots, the schools are accordingly planned with a compact design and a cluster desing, the former costing $13.37 per square foot, the latter $14.07. Classrooms are open at ends facing each other. Open areas can be visually blocked with chalkboards, tackboards, or storage cabinets and an esthetic feeling of spaciousness still maintained. Common space between rooms is raised to be used for a stage, small group study, or storage area. Acoustics are controlled by the concept of partial coverage of ceiling areas with sound-absorbent tile. The non-academic areas are separately housed but appear to belong to the total complex. Conceptually, the fifth grade is still a self-contained "home" but more open and less restrictive than traditionally. The sixth grade is exposed to informal teacher teams in an inter-room "neighborhood" complex. The seventh and eighth grades are considered a single unit and spend half the day in block time study in their home-rooms and half the day with subject specialists in a departmental "society." Independent research work and individual and committee projects are emphasized. The schools are flexibly designed in case the middle school educational concept goes away. (R. J. S.)

189 Clinchy, Evans and others
PROFILES OF SIGNIFICANT SCHOOLS, Belaire Elementary School,
San Angelo, Texas
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York, New York 10022. September, 1960, 19 pp.

The Belaire Elementary School is a circular or decagonal building containing eight classrooms, a kitchen, an office and a multipurpose room in the center. The multipurpose room is raised so that it can become a stage when two sliding walls are opened and three classrooms become an assembly. The building is air conditioned with a mechanical room beneath the multipurpose room which reduces the duct work to the classroom. Wide overhangs protect the building from direct sunlight and planters provide an esthetically pleasing appearance both from within and without. Each classroom has an exterior door and also a hallway around the multipurpose room. The hallway is separated from classrooms by 4' x 8' plywood panels and movable storage cabinets. The central multipurpose room can be used for eating, and audio-visual, or theatrical rehearsals by pulling a curtain surrounding the area. The building is constructed of reinforced concrete slabs covered with asphalt tile. Exterior walls are brick piers or window walls of glass and asbestos cement board. The roof is formed with long span steel bar joists, steel beams, and steel roof deck. The entire structure is supported by steel pipe columns. Belaire contains 13,650 square feet plus 800 square feet of mechanical basement. In addition there are 11,144 square feet of covered, paved and uninclosed play area beneath the overhangs, making a total of 20,022 square feet, computing the latter area at one half. The construction cost, in 1960, was $179,418 excluding architect's fee, for a square-foot cost $8.96. The building does not contain a library or a gymnasium and cannot be expanded. (J. H. H.)

193 Clinchy, Evans and others
PROFILES OF SIGNIFICANT SCHOOLS, Schools for Team Teaching
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York.

Nine elementary and junior high schools designed to house team teaching programs are described. The buildings are representative of pioneer efforts to design facilities for team teaching which is defined as the cooperative planning for and teaching of various sized groups of students in flexible teaching spaces allowing for rapid shifting of large and small classes. Teams are made up of 2-8 members assigned subject matter and teaching responsibilities compatible to their interests, ability, training, and experience. Two pioneer elementary schools at Englewood, Florida, and Carson City, Michigan, are described, costing $12.08 and $13.85 per square foot respectively. Two elementary schools in Madison Heights, Michigan, have teams housed in four classroom spaces clustered around a central workroom and teaching area. Flexibility is gained by the use of lightweight wood panels held in place by air compression-air walls. A Jefferson County, Colorado, junior high school arranges three classrooms as a trapezoid to form a team "triad." A little theatre seating 100 students can be expanded to a 400-seat auditorium by using an adjacent cafeteria. A Lexington, Massachusetts, elementary school features more permanent kinds of space to accommodate the typical needs of team teaching. Other schools feature team duplexes set in large, circular, compass style buildings; complete communications and electronic systems; the use of domes and hyperbolic paraboloids to enclose large uninterrupted areas; and the classroom clusters arranged in a semicircle around an outdoor amphitheater designed to provide flexibility of pupil movement through a nongraded curriculum. (R. J. S.)

20 COMMUNITY COLLEGES IN URBAN SETTINGS
School Planning Laboratory
Stanford University
Stanford, California. December 1963, 20 pp.

A booklet based upon the deliberations of a two-day work conference of the Community College Planning Center of Stanford University, December 19 and 20,1963. Architects, urban planners, community college presidents, and educational theorists studied the question: "Where should a community junior college campus be located--in the suburbs, with inexpensive land and automobile accessibility, or in the heart of the city near the heaviest population concentration?" The booklet describes the significance of urban life in the society, shows how community college might share that significance and includes aids, sketches, and suggestions for planners contemplating an urban setting for colleges. It is divided into the following major headings: (1) The Nature of Urban Society; (2) Educational Change; (3) Location of Colleges; (4) Implementive Devices. A series of sketches suggesting growth patterns and new concepts of college planning in urban areas brought forth unique ideas on vertical, horizontal, and non-continguous expansions; waterfront sites: afloat, ashore and on fill in shallow water; and multi-use of property: under offices, under apartments, over shopping centers, over parking areas, and over expressways. The conclusion reached by the conference was "The community college is faced with the duty, the challenge, and the opportunity to revitalize the economy with productive urban wage earners and to revitalize each individual with a sense of human worth and dignity." (M. W. B.)

448 Connecticut State Department of Education
STRUCTURAL CONSIDERATIONS IN SCHOOL BUILDING ECONOMY, Series No. 5
Connecticut State Department of Education
Hartford, Connecticut. June, 1963, 28 pp.

Number 5 in a series of planning guides suggesting economy considerations relating to structural features of school plants. A school building is defined as a "shelter structure" consisting of structural members, weather protection, mechanical installations, finishing, and built-in-equipment. Soil, site, and climate, significant factors in first design studies which govern the choice of the structural system are discussed. A chapter is devoted to weather protection elements which involve: roofing, flashings, overhangs, and sunshades, passage of people and goods, and passage of light and air, acoustical correction, and aesthetic improvement. Fire-resistivity in schools is discussed briefly as are some basic comparisons, such as, one-story vs. two-story, exposed vs. concealed structure, roof pitches, and new materials and techniques. Modular measure is recommended for general adoption for school building use. (D. O. B.)

757 Cox, William G.
HEAT PUMP SYSTEMS FOR SCHOOLS
Proceedings Forty-fourth Annual Convention
Association of School Business Officials of the United States
and Canada
2424 West Lawrence Avenue
Chicago, Illinois. 1958, 5 pp.

Presents the characteristics and uses of heat pumps in air conditioning schools. Technical and year-round utilization improvements of window units were discussed. Evaluation of cost and effectiveness of the individual unit in one school in the Hampton, Virginia district were summarized with reference to initial costs, operating costs, long term maintenance cost reduction, and compliance to state ventilation laws. (H. H. C.)

186 Educational Facilities Laboratories
EFL COLLEGE NEWSLETTER, NO. 5
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York, New York 10022. October, 1964, 16 pp.

The following topics are discussed: (1) Computer Masterminds Space Needs, Construction Costs cut by 3 Million Dollars, (2) Dormitories with a Difference, (3) Library Planning Expertise Boosted, (4) Dick Tracy Device for Libraries to Foil Biblioklepts, (5) School Carpeting with No Down Payment-Pay Only Maintenance, (6) Found: A New Remedy for Hot Classrooms, (7) Academic Four-Quarter Time, (8) Total Energy: A Way to Controlled Environment at Controlled Cost. (9) Fieldhouse Gets a Grassy Floor, (10) Electronic Age Learning Center. In each of the above articles EFL staff members identify some of the major problems, cite solutions being utilized and city campuses, plants, and products where the problems and solutions can be observed. Emphasis is placed on the need for America's colleges to innovate and experiment. (R. F. T.)

187 Educational Facilities Laboratories
EFL COLLEGE NEWSLETTER NO.6, FINE ARTS FACILITIES:
PAST, PRESENT, FUTURE
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York, New York 10022. October, 1965, 36 pp.

Present planning questions to be faced by institutions undertaking new construction for the arts; then, by implication gives answers by referring to the new arts facilities at two colleges, Macalester College, St. Paul, Minnesota and Webster College, Webster Groves, Missouri. These facilities sum up a broad range of planning considerations and represent widely divergent architectural solutions. Included are architectural drawings and photographs. A descriptive listing of fine arts centers, by size and institution. (R. F. T.)

139 Educational Facilities Laboratories
TO BUILD OR NOT TO BUILD --- A Report on the Utilization and
Planning of Instruction Facilities in Small Colleges
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. March, 1962, 38 pp.

A self-study manual aimed at colleges of 3,000 or smaller enrollments. The comparative data provided resulted from research conducted by John X. Jamrich of Michigan State University. Data were collected from more than 60 four-year, degree-granting liberal arts colleges in the north central area of the United States. An analysis of the self-study and planning process at the institutional level is supplied. Information is supplied concerning characteristics and trends found in small colleges and also about the physical characteristics of the campus plans. A chapter is devoted to the utilization of instructional space with suggestions for improving utilization. A sample space utilization workbook is supplied for use in conjunction with the publication in studying space utilization. Emphasis throughout is upon steps which can be taken at the local institution level to gather data pertinent to local problems and essential to their solution. (C. B.)

199 Farmer, Margaret and Weinstock, Ruth
SCHOOLS WITHOUT WALLS
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. 56 pp.

A report on a movement that began about 1957 to develop schools without interior partitions. It explains how these "open-space" schools are a logical outcome of efforts to develop a degree of flexibility of teaching spaces sufficient to permit teaching procedures to be adapted to the great variety and range of differences now recognized among students. It describes the team teaching procedures used at the Dilworth School in San Jose, California, the prototype of current schools with large open spaces instead of traditional classrooms, and shows how the teaching and learning processes are carried on here with a high degree of effectiveness and satisfaction. Reference is made in the text to other schools with open plans and a section of the report is devoted to concise descriptions, with floorplans, of Dilworth and six such other schools built since 1961. The school planner will appreciate the ideas offered. Guidelines are provided in the section entitled "Making Open Space Work." Here are outlined in some detail the problems peculiar to this type of school in respect to acoustics; the use of audiovisual equipment; scheduling; necessary partitioned and adjunct spaces; and furniture, furnishings, and equipment. (C. A.)

10 Faust, Beaver S.
VALIDATION OF THE CLAIMED ADVANTAGES WHEN SCHOOL BUILDINGS ARE
CONSTRUCTED AND FINANCED BY THE STATE PUBLIC SCHOOL BUILDING
AUTHORITY METHOD IN PENNSYLVANIA
Pennsylvania State University
University Park, Pennsylvania. March, 1961, 231 pp.

Validation of advantages claimed for the State Public School Building Authority Method included: (1) The cost of financing a project is less; (2) Maximum interest rate and bond discount are known before projects are bid; (3) Dependable construction inspection costs less, particularly on small projects; (4) The necessity for requesting bids for the sale of bond issues is desirable; (5) Method of inspection gives greater assurance that: (a) Plans and specifications are being followed, (b) All items and materials of construction are checked by trained personnel, (c) Rejected materials are removed from project site, (d) Discrepancies in plans and specifications are more likely to be found before projects are bid, (e) Proper decisions regarding construction will be made and carried out; (6) Method of inspection relieves board members and school administrator of much project supervision; (7) The school district profits from the authority's previous experience; (8) Projects are less exposed to undesirable local pressure groups; and (9) Greater consideration is given by suppliers and contractors in making adjustments in materials and workmanship. (T. E. J.)

72 Fuller, William S.
SPACE ALLOCATION, PUPIL CAPACITY, AND UNIT COSTS OF TWENTY SELECTED PUBLIC SECONDARY SCHOOL BUILDINGS CONSTRUCTED IN INDIANA DURING 1948 to 1958
Indiana University
Bloomington, Indiana. September, 1960, 337 pp.

The major findings of this study were: (1) The high school building which had a high percentage of its gross area in instructional space tended to have a small gross area, a small enrollment, four grades (9-12), and to be a non-member of the North Central Association. (2) The high school building which had a low percentage of its gross area in instructional space tended to have a large gross area, a large enrollment, three grades (10-12),and to be a member of the North Central Association. (3) The three computed pupil capacities showed a wide range of capacities for the same building, depending upon which definition was used. (4) The high school building with low unit costs tended to have a small gross area, a small enrollment, six grades (7-12), and to be a non-member of the North Central Association. (5) The high school building with high unit costs tended to have a large gross area, a medium enrollment, four grades (9-12), and to be a member of the North Central Association. (T. E. J.)

753 Galloway, Archibald N.
LEGAL PROBLEMS RELATED TO MARKETING OF SCHOOL BONDS
Proceedings Forty-fourth Annual Convention
Association of School Business Officials of the United States and Canada
2424 Lawrence Avenue
Chicago, Illinois. 1958, 8 pp.

Reports the differences between true and quasi municipal corporations, their characteristics and legal requirements resulting from these differences. Because of the peculiar legal position of the school district during bond issues, several matters should be considered in relation to such matters as: debt limits, purpose of issues, referendums, maturity, sale, and district's financial information. (H. H. C.)

11 Gang, Seymour
INFLUENCE OF SCHOOL PLANT UPON PERSONALITY RATINGS OF ELEMENTARY SCHOOL CHILDREN IN THE NEW YORK CITY PUBLIC SCHOOL SYSTEM
New York University
New York, New York. August, 1962, 114 pp.

This study reported that the mean changes in Personality Profile coefficients for each group and sub-groups indicated: A significant difference in favor of the Puerto Rican pupils in the study school appears at the fifth and sixth grade levels. At the sixth grade level this is largely due to the marked positive change of the Puerto Rican girls to average IQ. Where a significant difference had been found between the mean changes in the Personality Profile Coefficients in the study and comparison schools, a further check indicated that a significant difference within the study school appears in favor of the below average IQ group when that group is compared with the above average IQ group at both the fifth and sixth grade levels. While this study did not establish the hypothesis that changing environment results in personality change for non-Puerto Rican children of middle income families, though there seemed to be a consistent difference in their favor, it did establish the hypothesis for a large segment of the Puerto Rican children. The total impact of the dramatic change of environment for the Puerto Rican children was probably so penetrating as to have a marked affect upon their personality development. (T. E. J.)

70 Gardner, Dwayne Everett
DETERMINATION OF COSTS TO HOUSE AN EDUCATION PROGRAM IN NEBRASKA
Nebraska Teachers College
Wayne, Nebraska. March, 1962, 257 pp.

Some of the conclusions of this study were: (1) A program of maintenance which is dependent upon the availability of funds may be excessive in cost. (2) School plant planning specialists and architects need to consider the long-range costs of maintenance during the planning of new facilities. (3) Limitations placed upon the amount of expenditure during the initial construction of new facilities may result in the waste of money. (4) Adequate maintenance staffing and the training of this staff are musts to assure economical maintenance programs. (5) The initial cost of building materials should be balanced with the durability of those materials. (6) Adequate maintenance contributes to public appreciation, interest in, and support of the total school program. (7) Intricate co-ordination is necessary to achieve balance between the instructional program costs, the maintenance and operation costs, and the financing of these costs. Some of the recommendations were: (1) Encourage the study of possible long-range economics in schoolhouse construction by professional educators. (2) Implement a state-wide and uniform system of property accounting. (3) Provide a staff in the State Department of Education to give leadership and service which will (a) Provide leadership concerning the best maintenance and operation practices and standards, (b) Develop a positive approach towards solving school housing problems, (c) Display effective public relations which will inform the lay public with respect to those elements constituting adequate, safe, healthful, and economical school facilities. (T. E. J.)

71 Gatski, Henry Joseph
A COMPARISON OF FOUR FORMULAE FOR RATING PUPIL CAPACITY OF SCHOOL BUILDINGS IN THE STATE OF PENNSYLVANIA
Pennsylvania State University
University Park, Pennsylvania. September, 1963, 124 pp.

In this study it was found that upon the initial occupancy of the 50 selected school buildings, the entrance enrollment data indicated that 6 schools had enrollments that exceeded the Pennsylvania formula's rated capacity. The percentage of difference between the entrance enrollment and capacity produced a range from .40 to 16.2 percent. The comparison of the current enrollment with the same rated capacity indicated that 20 of the 50 schools had an enrollment that exceeded their rated capacity. The percentage of difference produced a range from .80 to 36.8 percent. The current enrollment data further indicated that a total of 23 schools had enrollments that were near or had exceeded their rated capacity. An inquiry to the administrators of the 23 schools concerning the effect of the enrollment upon their educational program indicated that 9 schools expressed no apparent effects. The remaining 14 schools expressed varying degrees of effects. Two schools indicated that they were compelled to operate on half-day, or double sessions, as a result of the increased enrollment over capacity. It was suggested that results of this study be used to review the present rating capacity formula, and that a similar study be conducted periodically to ascertain the adequacy of the then existing rating capacity formula. (T. E. J.)

190 Gilliland, John W.
PROFILE OF A SIGNIFICANT SCHOOL, Alcoa High School, Alcoa, Tennessee
School Planning Laboratory
University of Tennessee
Knoxville, Tennessee. March, 1964, 16 pp.

A description with the aid of floor plans and diagrams of the design of a compact, two-story, hexagonal-shaped high school building erected at Alcoa, Tennessee. The scale on which the drawings of the floor plans are reproduced is small and consequently a little difficult to interpret without magnification, but, once the plan has been interpreted, it becomes evident that the design has the qualities described in the text: compactness, economy of construction, flexibility, expansibility (within limits) and adequacy to meet specific program requirements. Descriptive details are provided of classroom arrangements, the instructional materials center, rooms for special subjects, food handling facilities, visual, acoustical, and thermal treatment, and construction features. (C. A.)

755 Ginn, Hugh
SOME THINGS THE BUSINSS MANAGER SHOULD KNOW ABOUT TELEVISION
Proceedings Forty-fourth Annual Convention
Association of School Business Officials of the United States and Canada
2424 West Lawrence Avenue
Chicago, Illinois. 1958, 15 pp.

Presents a brief sketch of governmental trends for encouraging educational television. Implications and considerations for school district managers were discussed as a result of experiences with educational television in the Oklahoma schools. Major areas discussed were: costs involved with the operation and installation of television studios, equipment, and technical personnel. (H. H. C.)

84 Gray, Stuart C.
A STUDY OF THE RELATIONSHIP BETWEEN SIZE AND A NUMBER QUALITATIVE AND QUANTITATIVE FACTORS OF EDUCATION IN FOUR SIZES OF SECONDARY SCHOOLS IN IOWA
State University of Iowa
Ames, Iowa. February, 1962, 150 pp.

Enrollment Groups used in the study were:

A Schools	B	C	D
1000 & Above	400-999	150-399	0-149

Some of the major findings of the study included: (1) Student Achievement and College Enrollment - Very small differences in standard score units favoring the larger schools were found on the *Iowa Test of Educational Development*. These differences were not significant at the .05 level. No. significant differences were found in college freshman grade point earned. The B group obtained a slightly higher GPA than did the A group. The D group was lowest on this measure. The B and C groups sent about nine percent more graduates on to college than did the A or D groups. This difference was not significant. (2) Faculty Characteristics - There was a significantly larger turnover of staff in the small schools, and a significantly smaller number of teachers in their major field or preparation in the small schools. No significant difference was found in number of periods taught per day by teachers among the four groups of schools. (3) Cost and Breadth of Program - A positive relationship was found between size of school and the number of units of educational opportunity available among the four size groups. There was an inverse relationship between size of school and the cost of these units when instructional salary was used as the cost factor. The annual per pupil tuition cost among the four groups was significantly different at the .05 level. The B group was found to be costing the least and the D group was costing the most. (T. E. J.)

343 Harris, Al and Caudill, William W.
AN ANALYSIS OF TWO MULTI-PURPOSE CORRIDOR TYPE,
Research Report No. 4
American School and University.
757 Third Avenue
New York, New York 10017. 1955-1956, vol. 27, pp. 409-436.

School planners, in their search for economy through the maximum utilization of space, have seen fit to make use of the multi-purpose corridor. By making the corridor work for education, great savings in construction costs are claimed. This report is an attempt to answer the question: Do these multi-functional corridors really do their job, and do it well? The double-loaded and single-loaded multi-purpose corridors, two of the basic types, are in operation in elementary schools in the Clinton School District of Clinton, Oklahoma. The report has photographs and line drawings of these schools. It also includes a description of each school, function of the corridor, and teachers' comments. The article states these general conclusions: (1) corridor space has educational practicableness; (2) double-loaded multi-purpose corridor plan has many merits in connection with GENERAL school activities; (3) single-loaded multi-purpose corridor plan has much merit in connection with EXPANDED classroom activities; (4) both plan types are equally good provided their use is in accord with their intended purpose. (M. W. B.)

346 Hensarling, Paul R.
GLASS WALLS AND THE INSTRUCTIONAL PROGRAM - Research Report 7
American School and University. Vol. 27, 1955-56.

A report on elementary schools, in Port Arthur, Texas, planned and built to literally bring the "outside in." This was accomplished with the liberal use of glass, rejecting the conventional classroom style of the past. After two years in operation, a survey was made among the teachers, students, parents, and principals who use the building to answer the major question: Does the extensive use of glass surfaces in school building construction HELP OR HINDER the instructional program? These schools probably contain more glass surfaces than any other schools in the nation and have been appropriately called "showcase schools." This report answers the following questions and other related questions that have been stirred up from the unusual design of the buildings: (1) what are the advantages and disadvantages of such extensive use of glass? (2) how do children respond to "outside" activities which are visible from the classroom? (3) what are the teachers' personal reactions to the open type classroom? (4) have school patrons accepted the change? (5) what about economy, maintenance, and safety? The report contains photographs of the building and classrooms in use and lists ten conclusions. (M. W. B.)

94 Holt, E. E. and others
GUIDELINES FOR SCHOOL BUILDING PLANNING
State of Ohio, Department of Education
Columbus, Ohio. April, 1964, 118 pp.

A detailed and complete set of guidelines for school building planning. Developed for the State of Ohio, the guidelines are intended to be suggestions for planning State Assistance Programs as well as local initiative building programs in that state. The document uses an outline format throughout. Overall approaches to school building planning along with suggestions for best utilization of the document help the reader become oriented to the main body of the report. Highly detailed and specific requirements for elementary, junior high, and senior high school buildings are treated in separate chapters. These chapters treat the facilities for each educational level from size and site, through every specialized area (i. e., faculty room, kindergarten, library) outlines the fixed equipment, finishes, and loose or movable equipment needed therein. Throughout the document "desirable features" are high-lighted by being placed in a box. The final chapter, prepared by the Architects Society of Ohio, presents cost factors by region for school construction in Ohio. These data are presented in tabular form for easy reference and comparison. This chapter concludes with a listing of costs for various kinds of additions to existing buildings. (G. R. R.)

95 Hummel, Robert E.
EDUCATIONAL PLANNING PROCEDURES FOR SCHOOL BUILDING CONSTRUCTION
University of Southern California
Los Angeles, California. June, 1961, 456 pp.

Major findings of the study were: (1) Written educational specifications had been prepared by 59 percent of all districts surveyed; (2) Participants in educational planning were in rank order of frequency of use: architects, principals, coordinators and directors of curriculum, supervisors, teachers, classified personnel (custodians, cooks, maintenance men and transportation workers) members of governing boards, the Bureau of School Planning, the lay public, and county schools personnel; (3) The evaluation of recently completed buildings was used for improved planning by 87 percent of the districts; (4) Planning directors favored the use of master teachers of long experience, departments heads, and non-teaching personnel for assistance in educational planning; (5) Lack of time was the problem most frequently encountered in educational planning; (6) The primary contribution of the administrative staff was leadership; without it planning failed; (7) Architects estimated one-fifth of the total school building planning time should be devoted to educational planning; (8) Only two-thirds of the architects surveyed had received written educational specifications; (9) Architects were concerned about the reluctance of school districts to study long range objectives becuase of immediate pressures for space; (10) All architects believed the preliminary building plans and specifications should be received by the superintendent. (T. E. J.)

96 Hutcheson, David William
STATE SCHOOL PLANT SERVICES
University of Nebraska
Lincoln, Nebraska. April, 1963, 343 pp.

The study indicated there was a wide range in the scope and type of services provided and controls exercised by the various education agencies in the school plant field, and that authorities in the school plant field generally agree that the standardization of services was not feasible under conditions of widely varying practices in the delegation of responsibility and authority for school plants to state education agencies. A continuing trend toward greater participation by state education agencies in providing services on local school plant programs was also noted. Additional conclusions of the study were: (1) Generally, state boards of education are granted authority to set policy and evaluate the results of state education agency participation in local school plant programs; (2) Most state education agencies offered school plant services of an advisory and consultative nature; (3) Provisions for assistance in the development of educational specifications is an expanding type of service; (4) Services provided by state education agencies are in the process of being expanded in the areas of school plant operation and maintenance; (5) The services of universities are only infrequently reported as being utilized by state education agencies although several members of the jury of experts advised the use of competent university personnel; and (6) Most state education agencies provided assistance on local school plant surveys. (T. E. J.)

133 Illuminating Engineering Society
AMERICAN STANDARD GUIDE FOR SCHOOL LIGHTING
National Council on Schoolhouse Construction
East Lansing, Michigan. 1962, 40 pp.

A revision of the 1948 American Standard Guide for School Lighting, this publication is the result of the efforts of a joint task committee representing the American Institute of Architects, the Illuminating Engineering Society, and the National Council on Schoolhouse Construction. Beginning with a statement of the problem, attention to the goals of a satisfactory visual environment, and a description of the variables involved, the publication continues with examples, applications to specific problems, and references to research in the field. Systems of illumination, their proper maintenance and design procedure, are covered. A wide range of pictorial and graphic illustrations, coupled with an extensive bibliography, make this a highly useful document. Of particular value is the intensive background treatment of illumination problems and experiments contained in Appendixes A through D. Included is a section defining basic terminology essential to an understanding of the field. A subject index is supplied. (C. B.)

377 McLean, Robert E.
THE RELATIONSHIP OF SCHOOL PLANT EXPENSE AND BUILDING COMPACTNESS IN ELEMENTARY SCHOOL BUILDINGS
Stanford University
Stanford, California. November, 1960, 73 pp.

Investigation of possibilities for reducing school plant expense by improved school design. The measure of compactness used in this study was the outside perimeter divided by the enclosed square footage of the building. School plants built during the fiscal years 1949 through 1953 were selected for the study. The expense of maintaining and operating these plants for each of the five years studied, 1954-1958, was divided by the number of square feet of construction on that site for that specific year to derive an annual plant expense per square foot. These five annual plant expenses were averaged to compute the plant expense index for that school. The gross plant expense was achieved by totaling the five annual plant expenses. Three major statistical analyses were used: (1) the part correlation coefficient, (2) the product-moment correlation, and (3) the difference between means. Resort was made to the part correlation technique in order to avoid an element of spurious correlation that results from correlating two indices (plant expense and compactness) that have a common variable denominator. The conclusion was drawn that there is a significant inverse relationship between compactness of a school building and subsequent plant expense when square footage is included in plant expense. Approximately 17 percent of the variance of plant expense is associated with the variability of compactness. (T. E. J.)

371 Meadville, Harry William
THE RELATIONSHIP OF INITIAL SCHOOL PLANT COST AND BUILDING COMPACTNESS IN SECONDARY SCHOOL BUILDINGS
Stanford University
Stanford, California. November, 1961, 79 pp.

An investigation of variables that are involved in the initial cost of a school plant. The variables given complete analysis were:

1. Types of Construction
    (a) Class A--Steel frame, fireproof structures
    (b) Class B--Reinforced concrete and concrete block construction
    (c) Class C--Wood frame and stucco construction
2. Size of school plants
    (a) Schools under 50,000 square feet
    (b) Schools 50,000 to 100,000 square feet
    (c) Schools over 100,000 square feet

The hypothesis that there was an inverse relationship between initial cost and building compactness was valid regardless of how these data were grouped. The coefficient of correlation on all 26 schools was .95. The variables were each analyzed, and highly significant correlations were obtained even though some were very small group samplings. The Class A construction, a sample of 6, had a coefficient correlation of .83. Classes B and C, 10 in each sample, yielded a correlation of .90. Size (area) of schools gave meaningful information. The smaller schools under 50,000 square feet, 5 in number, yielded a correlation at .78; in the 50,000 to 100,000 group, the correlation was quite similar at .77 for a sample of 8. But 13 schools in the over 100,000 square feet group yielded a correlation of .90. The primary purpose of the study was to discover what relationship exists between initial cost and building compactness. No attempt was made to relate it to the value of the educational program. (T. E. J.)

601 Metropolitan Area Planning Commission
EXISTING SCHOOL FACILITIES OF METROPOLITAN PULASKI
COUNT, ARKANSAS, Report No. 1
Metropolitan Area Planning Commission
Pulaski County, Arkansas. 1957, 66 pp.

This study of school plant planning is the first of several to be made by the Metropolitan Planning Commission of Pulaski County, Arkansas. The study was funded jointly by the three school districts of the county and a planning assistance grant from the Urban Renewal Administration of the Housing and Home Finance Agency. The intent of the first report was to present the findings of an inventory of the existing school facilities of Pulaski County, Arkansas for grades 1-12 as of the date of publication, May 1957. The findings are analyzed, classified, and presented in graphic form. One of the major goals of the report was to secure county-wide adoption of area-wide standards for school building standards. Following the adoption of the area-wide school building standards, the data will be evaluated in the light of the standards. The evaluation of each building together with an analysis of school population trends within the county will be used to estimate the useful like of each existing school plant. Finally the report will recommend enlargement, modernization, or abandonment of each individual plant. Subsequent studies are to deal with (1) standards for school planning, including coordination of school and recreation facilities, (2) school population trends, (3) a school development plan for the metropolitan area, including an evaluation of existing facilities and a study of the need for new facilities and (4) a six-year capital outlay program for schools of the metropolitan area. (C. S. B.)

27 Moore, Frank C.
ECONOMY HANDBOOK - ECONOMIES FROM A TO Z IN PLANNING
AND BUILDING SCHOOLS
Commission on School Buildings
New York State. November, 1960, 107 pp.

A report of a study by the Temporary State Commission on School Buildings of the New York State Legislature. Includes recommendations for effecting economies in five categories: (1) Selecting the Architect, (2) Site Selection, (3) Educational and Architectural Planning, (4) Construction Details, and (5) Contracting the Work. Each category has subdivisions which are provided with checklists of suggestions appropriate to the activity or function under consideration. Photographs, diagrams, and floor plans are provided as explanatory material. Appendix I supplies an additional checklist for Heating and Ventilating and for Plumbing economies. Appendix II provides an additional checklist of economies which may be effected through deletions and postponements. No information is furnished regarding study design or data collection methods. (C. B.)

144 Morisseau, James J. and others
BRICKS AND MORTARBOARDS
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. May, 1964, 168 pp.

A report on college planning and building which utilizes the voices of a large number of educators, architects, and persons of other interested occupations. Five professional writers toured the country and wrote chapters dealing with classrooms, laboratories, libraries, dormitories and college campuses. The book is intended to assist college trustees, corporation and foundation executives, lawmakers, and potential donors in making basic decisions affecting the future of American higher education. The vast scope of school building activity and of Federal Funds available to assist in the construction of school buildings are broadly stated. EFL included chapters on money and renovations. Numerous photographs and sketches are included; old problems are re-stated and re-charted to emphasize the lack of adequate accomplishment during past years and the need for new college buildings. Colleges and universities are being challenged with explosive growth, inevitable change, and complexity. Their response must be comprehensive planning, design for maximum convertibility, and full utilization of space, time, people, and things. (R. F. T.)

191 Murphy, Judith
MIDDLE SCHOOLS
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York, New York 10022. 64 pp.

A report on the middle school defined as a school between two other schools which may house grades 7-8-9, 5-6-7-8, 5-6-7-8-9, 6-7-8-9, or just grades 7-8. Particular groupings are less important than the efforts to match institutions to the needs and potential of children from 10-14,or so. Reasons for differing middle schools in various communities stem from sociological problems as well as educational. This may include de facto segregation, financing, travel distance for young children, and belief in the efficiency of the 4-year high school for a more sustained and vigorous education program. The decisions as to form or organization will have to be made on practical grounds and on the basis of social and administrative viability. Any pattern is satisfactory that gives identity to youths during early adolescence, includes at least three grades for stability, and brackets those grades in which significant numbers of pupils reach pubescence. As examples of the variety of solutions, Part II analyzes six schools which depict different architectural and philosophical approaches to the problem. Part III of the report sets forth five intermediate schools, schools that share the middle school concept while adhering to more conventional grade organization. (J. H. H.)

1 Palmer, Albert Lee
A COMPARISON OF THE COSTS OF HEATING SELECTED SCHOOLS WITH ELECTRICITY, COAL, AND NATURAL GAS
University of Tennessee
Knoxville, Tennessee. January, 1964, 137 pp.

A study to compare the costs of electricity, coal, and natural gas as energy sources in heating selected school buildings in East Tennessee. The following sub-problems were identified: (1) to develop a general background of information about school plant heating; (2) to identify factors having an influence upon the cost of fuel for heating school buildings; and (3) to determine heating cost using electricity, coal, and natural gas as energy sources. The cost for heating the Harold McCormick School with electricity was $2,383.80 or 14.17 cents per square foot. This amount was 933 percent greater than the cost per square foot for heating the Charles A. Bell School with coal and 273 percent greater than the cost per square foot for heating the St. Jude's School with coal was $561.20 or 1.55 cents per square foot. This amount was 933 percent less than the cost per square foot for heating the Harold McCormick School with electricity and 341 percent less than the cost per square foot for heating the St. Jude's School with natural gas. The cost for heating the St. Jude's School with natural gass was $1,051.30 or 5.29 cents per square foot. This amount was 273 percent less than the cost per square foot for heating the Harold McCormick School with electricity and 341 percent greater than the cost per square foot for heating the Charles A. Bell School with coal. (T. E. J.)

324 Paseur, C. Herbert
DECENTRALIZED SCHOOL VS. CENTRALIZED SCHOOL, Investigation No. 3
Caudill, Rowlett and Scott
3636 Richmond Avenue
Houston, Texas. July, 1960, 12 pp.

A basic comparison between two intermediate schools housing grades 5 through 8 conducted in Saginaw, Michigan. Both schools were let to the same contractor on March 15, 1960; used the same types of structural, mechanical, and electrical systems, materials, and construction details, but were different in geometric layout; were located on level sites with approximately the same soil condition; had exactly the same educational program and space requirements for 650 pupils. The only major difference, which prompted the experiment, was the site size. The centralized school site consisted of 17.5 acres; the decentralized school site, 32.1 acres. A chart of the breakdown of cost between the two schools is divided into three areas and 18 items: (1) cost data;(2) education data; and (3) geometry data. A site layout drawing is included also. The decentralized school cost 3.8 percent more; but the study group wishes to wait a year or two for an evaluation by the superintendent and faculty of the educational performance. There is not conclusive evidence at this time that first cost savings should be the determining factor for planning future schools. Further evaluation may show that the small additional cost may buy a bargain in increased educational performance. (M. W. B)

347 Pena, William A.
PREDETERMINATION OF NATURAL ILLUMINATION BY THE MODEL TESTING METHOD - Research Report 8
American School and University. Vol. 28, 1956-57.

New educational specifications have forced architects toward the use of new and untried architectural forms which result in the following natural lighting dilemma: (1) Can the natural lighting performance of school buildings be predetermined before they are actually built? (2) Or do we have to wait until buildings are completed before learning the outcome of our efforts to provide a good lighting environment? (3) Can we take the guesswork out of new and untried natural lighting techniques? Now, natural lighting problems can be engineered accurately with the use of models. Model testing is a quick and economical means of assuring good seeing environments by predicting lighting performance early in the planning stage thereby avoiding costly mistakes. It also gives an architect more freedom in design by providing a measure of assurance to what he can and cannot do with natural light. In using these model tests, the more details that are incorporated into the model, the more accurate the results will be. Such man-made variables as the dimensions of a classroom, the color of the ceiling, walls, and floor, size and location of windows, location of trees and shrubs, and the color and location of screens, streets, walks, and terraces may all have a bearing on the final results. This service is available from the Texas Engineering Experiment Station. (M. W. B.)

453 PLANNING AND EQUIPPING BUSINESS EDUCATION CLASSROOMS
California State Department of Education
California State Printing Office
Sacramento, California. 1961

A guide designed primarily for use in planning business education facilities for junior high schools, and four-year and senior high schools. It may be used to advantage also in planning facilities for junior colleges and for adult education purposes. Attention is given first to basic considerations and general procedures in the planning process. The need for group involvement and careful development of philosophical objectives are discussed. The role of the various levels of government in planning is also covered. Of special interest are the examples of forms ABC & D of the California Space Adequacy Survey forms. These forms offer a detailed mathematical approach for determining proper allocation of teaching space. Educational specifications for the business education suite are briefly defined and then spelled out in detail for each special area in the suite. Lists of equipment are also presented for each area. The publications includes pictures of business education facilities and equipment. The final one-third of the document is devoted to planning junior college business education classrooms. (G. R. R.)

271 Sessions, E. B.
REHABILITATION OF EXISTING SCHOOL BUILDINGS OR CONSTRUCTION OF NEW BUILDINGS? Research Bulletin No. 2
Bureau of Educational Research
Ohio State University
Columbus, Ohio. 1964, 16 pp.

Presents three general areas for consideration: (1) rehabilitation of existing school buildings, and (2) rehabilitation of specific buildings, and (3) additional considerations. Criteria for analyzing the first area was: establishment of school building policies concerning site and location obsolescence, population changes, community characteristics, land use, industrial expansion, apartment dwellings, traffic, and transportation facilities. Part two's criteria for rehabilitating specific buildings were (1) safety, (2) maintenance, (3) operation and custodial-time considerations. The conclusions listed considerations relating to public relations and financial subjects. (H. H. C.)

342 Richardson, L. S. and Caudill, William W.
TOWARDS AN ECONOMICAL FLEXIBILITY
Research Report No. 3
American School and University 1954-55

A & M Consolidated Schools, College Station, Texas, obtained an economical flexibility in the design of a high school by (1) arranging space for an increasing enrollment, and (2) by providing space to house any type of curriculum. A floor plan showing the three-level building--top level for classroom wing; lower level contains the administration unit--is included. Flexibility is defined by breaking it down into three separate words--expandability, convertibility, and versatility. In planning for expandability, a master plan was developed to allow the community school to grow effectively and economically and to unify the variety of architecture. In planning for convertibility, needed because of changing curriculums and teaching methods, it was decided that the school would not be designed for any fixed operation. In planning for versatility, movable panels were used to subdivide the building. The school auditorium, in the shape of a domed circular cuilding, used folding partitions to achieve convertibility and versatility. Numerous comparative diagrams are included in the report. (M. W. B.)

136 Riker, Harold C. and Lopez, Frank G.
COLLEGE STUDENTS LIVE HERE
Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York 22, New York. 1961, 152 pp.

Guidelines for obtaining buildings and spaces for college people. Emphasis is placed on dormitories and residence spaces for single students, married students, and faculty members. Many sketches of housing projects are included and explained, none of which meet all the guidelines, but each is noted for its attack on a specific problem at a given time. Many innovations are cited which seem to meet the ever-changing demands of college students and curriculum in the variety of large, small, private, and public colleges of today. The cases described are examples which might serve as the basis for better housing on other college campuses. Housing is defined as anywhere students and faculty members might live: dormitories, residence halls, sororities, fraternities, apartments, cooperative houses, rooms in private houses, or in private residences. Housing must also deal with the relationship of college people to college facilities including not only buildings but furnishings, roads, walks, parking spaces, recreation areas and landscaping. College Students Live Here stresses particularly the development of an exact and specific set of requirements for residence buildings to include type, size, dimension, color, finish, equipment, and also outdoor spaces, air flow, lighting, acoustics, temperature, all in relation to the students. (A. B. G.)

344 Rowlett, John M. and Bullock, Thomas A.
RELATIONSHIP OF COST TO THE GEOMETRY OF A BUILDING - Research Report 5
American School and University. Vol. 27, 1955-56.

An approach to the problem of how to obtain the maximum amount of quality teaching space for each building dollar. Contains line drawings, floor plans, specifications, and cost comparisons of two schools custom-designed for overall economy with features such as: (1) minimum outside perimeter; (2) simplified use of materials; (3) repetitive structural bays; and (4) minimum wall height. Both buildings were simple and compact and completely adequate for the educational programs. Conditions of the sites made one school more geometrically complex than the other. The results to date, construction-wise and educationally, have proven that the taxpayer got the most for his money in the simpler building. (M. W. B.)

140 School Planning Laboratories
SCHOOL BUS FACILITIES
Stanford University
Stanford, California. 8 pp.

A summary of a study of the building needs for school transportation systems undertaken for the Kaiser Aluminum and Chemical Corporation. It outlines the magnitude of school transportation systems as an indication of buildings necessary to house and maintain equipment. The types of areas needed to fulfill the bus housing and maintenance functions, spatial relationships, utilities provisions, cross-sections and schematic drawings are shown. Emphasis is place upon flexibility and adaptability to local needs. Data were gathered by questionnaire from 200 school districts; by letter from 48 state departments of education; through analysis of bus chassis manufacturers specifications; from interviews with school bus supervisors, shop foremen, and transportation company officials; and from a survey of the literature. (C. B.)

452 Southern Section Building Committee
GUIDE FOR EVALUATION OF SCHOOL FACILITIES
California Association of Public School Business Officials
Anaheim, California. April, 1966, 59 pp.

Information --- to be used to eliminate unsatisfactory building features and stimulate improvements in future school facilities. After a brief explanation of the use of the guide and a sample of the summary evaluation form, the document launches into a separate section on each of ten "School Facilities Design Factors." These factors are: site, spatial, visual, thermal, sonic, aesthetics, audio-visual, equipment, safety, and maintenance. Each factor is treated under the same format which contains a brief descriptive paragraph, a set of questions relative to specialized aspects of the factor, and an evaluation profile form. The profile forms are made up on concentric circles forming a bull's-eye pattern. The specialized aspects of the factor are represented by radial lines. A perfect score is placed on the fifth circle. Thus, the evaluator develops a circular profile for each factor. An average score is also obtained which, in turn, is recorded on the summary form to produce an overall profile for the facility. Some of the evaluative criteria are technical in nature and may require special knowledge to handle adequately. By following the well written descriptions in these areas, however, one should be able to do an acceptable job. The final section of the guide contains a series of questionnaires to be submitted to such groups as teachers, principals, students, and district administrators. These questionnaires supplement data gathered on sonic, thermal, and visual factors. (G. R. R.)

54 Texas Education Agency
SCHOOL PLANT SERVICES 1962
Texas Education Agency
Austin, Texas. February, 1962, 17 pp.

An explanation of the Texas Education Agency School Plant policies and services. It quotes extensively from current laws and regulations pertaining to school plant planning and construction within the State of Texas. It points out provisions essential to a successful working relationship between local schools and the Agency in the area of school plant planning and maintenance. Examples of certification of plans and specifications submitted to the Agency are included. (R. L. F.)

173 University of State of New York
Division Leaders for Facilities Planning
HEATING AND VENTILATING RECOMMENDATIONS FOR NEW YORK STATE SCHOOLS
State Education Department
Albany, New York 12224. April, 1964, 42 pp.

Fundamental objectives to be attained in heating and ventilating school buildings are (1) An environment which will remove the heat produced and not too fast, and (2) An atmosphere free from objectionalbe microbes, odors, dusts, fumes, and gases. The thermal conditions which should be maintained in various types of rooms (depending on variations in physical activity) are indicated in detail. Listed are certain alternative procedures any of which may meet the situation in a given school. The aim as stated is "to utilize procedures and equipment which are adapted to the specific requirements of a school building and are capable of being effectively operated by the personnel and with the funds which will be available." (T. S. G.)

197 Weinstock, Ruth
PROFILES OF SIGNIFICANT SCHOOLS, HEATHCOTE ELEMENTARY SCHOOL,
SCARSDALE, NEW YORK
Educational Facilities Laboratories, Inc.,
477 Madison Avenue
New York, New York 10022. September, 1960, 32 pp.

The Heathcote Elementary School of Scarsdale has certain stimulating features that are worthy of study, some of which might be incorporated in any school building plan. The 5,000 or more families of the city in 1960 had an average annual income of $1[illegible],458 after taxes. Most of these families include professional and business executives who demand a good educational system and are willing to pay for it, even though it costs them over $1,000 per year for each school child. Outstanding features of the Heathcote school are (1) the natural beauty of the site of 22 acres of rolling, wooded land, (2) the blending of the six buildings with the landscape which suggests that "it all grew up together," and (3) the use of color in building materials to blend with the trees, the earthr, and the sunlight. The architects tried to get away from a school idea and into a physical environment that children would love. Small educational neighborhoods and flow of space are emphasized. The use of the outdoors as a resource center is stressed. Hexagonal classrooms, four to a cluster, grouped around a central foyer, and leading to special activities cores by separate corridors give the children their own units and a feeling of hominess. This arrangement makes it easier to move children from one class to another according to the pupils' individual needs and capacities than does the traditional building. The Heathcote school is so flexible it need not fear change. (A. B. G.)

752 Whitbeck, John
FINANCIAL PROBLEMS RELATED TO MARKETING OF SCHOOL BONDS
Proceedings Forty-fourth Annual Convention
Association of School Business Officials of the United States
and Canada
2424 West Lawrence Avenue
Chicago, Illinois. 1958, 8 pp.

Common problems of school districts and professional brokerage firms were discussed with reference to determining bond's value. Bidding, securing, and determining resale value of school bonds, criteria in appraisal, and guidelines for writing community descriptions were the major areas of concern in determining school bond values. (H. H. C.)

450 Wilsey, Carl E.
SCHOOL SITE COSTS IN A RAPIDLY EXPANDING SUBURBAN AREA
Stanford University
Stanford, California. November, 1960, 107 pp.

Purposes of study: (1) to test the hypothesis that cost savings result from early acquisition of school sites, (2) to estimate the dollar savings that may result from early acquisition, and (3) to determine how far in advance of need sites should be purchases. During the period under investigation 106 school sites were purchased by the districts included in the survey, at a total cost of $10,883,292. The estimated average cost of sites increased from $3,934 per acre in 1949 to $10,804 per acre in 1959. A positive correlation was found to exist between site costs and population growth, and between site costs and the development characteristics of land. A low, negative correlation was found to exist between site costs and the number of years in advance of need that sites were purchased. It would seem advisable for districts to borrow money to finance the early purchase of sites, since the initial saving in land cost exceeds the interest cost and tax loss. (T. E. J.)

756 Wolfer, Wilfred C.
EDUCATIONAL AND BIDDING SPECIFICATIONS
Proceedings Forty-fourth Annual Convention
Association of School Business Officials of the United States
and Canada
2424 West Lawrence Avenue
Chicago, Illinois. 1958, 6 pp.

Reports on two areas: (1) the need for community groups and individuals, including pupils, parents, teachers, supervisors and other administrative personnel to participate in the formulation and planning of education specifications; and (2) the three types of building specifications commonly used while working with the architect and contractor. The characteristics of the Open-specification, Bidder's Choice, and the Base Bid Specification are explained. (H. H. C.)

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